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Chen-Northern, inc
Belmont
Maintenance
Project, Great
Divide Ski area,
Helena, Montana

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FINAL REPORT

BELMONT MAINTENANCE PROJECT

Marysville Mining District, Lewis & Clark County

Western Montana

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FINAL REPORT

BELMONT MAINTENANCE PROJECT

GREAT DIVIDE SKI AREA

HELENA, MONTANA

Prepared for:

Department of State Lands
Abandoned Mine Bureau

Prepared by:

Chen-Northern, Inc.
1610 B Street
P.O. Box 4699
Helena, MT 59604
(406)443-5210

January 1991

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1.0 INTRODUCTION

Hard rock mining has taken place in Montana since 1862 and was essentially unregulated from a reclamation standpoint for over one hundred years. This resulted in thousands of unprotected shafts and adits in mining districts across the state. The hazards associated with these mine openings are many and range from bad-air to falling rock and cave-ins.

1.1 SITE DESCRIPTION AND LOCATION

The sites included in the Belmont Maintenance Project are located on, or immediately adjacent to, the Great Divide Ski Area in the Marysville Mining District, Lewis and Clark County, approximately 20 miles northwest of Helena. A vicinity map of the area identifying the reclamation site is presented in Figure 1-1. All mine openings threatened public safety. The shafts involved were deep enough to prevent unaided escape upon entry and were located in areas recently developed as new ski runs.

1.2 PROJECT BACKGROUND

The purpose of the Belmont Maintenance Project was to alleviate the hazards associated with hazardous mine openings threatening the safety of skiers at the Great Divide Ski Area. These sites were originally included in the Abandoned Mine Reclamation Bureau's (AMRB) Hazardous Mine Opening (HMO) Project Phase 28. Landowners were initially notified that reclamation construction would take place during 1989. The project was delayed for one year when the State Historic Preservation Office requested an intensive cultural resource evaluation of the Marysville district. Contract documents were finalized for construction during 1990 and a second delay resulting from prioritization of the AMRB's cultural contractor's assignments postponed HMO Project 28 until 1991.

In response to concerns expressed by ski area management regarding public safety, an AMR maintenance project was authorized to reclaim those mine openings within the boundaries of the ski area, or immediately adjacent to it. Project plans were developed during September, 1990 with the intent to complete reclamation before the on-set of winter and the ensuing ski season. Backfilling was the preferred reclamation option for closing hazardous shafts but alternative methods (eg. grate, culvert, fencing) were utilized at the owner's request to preserve access.

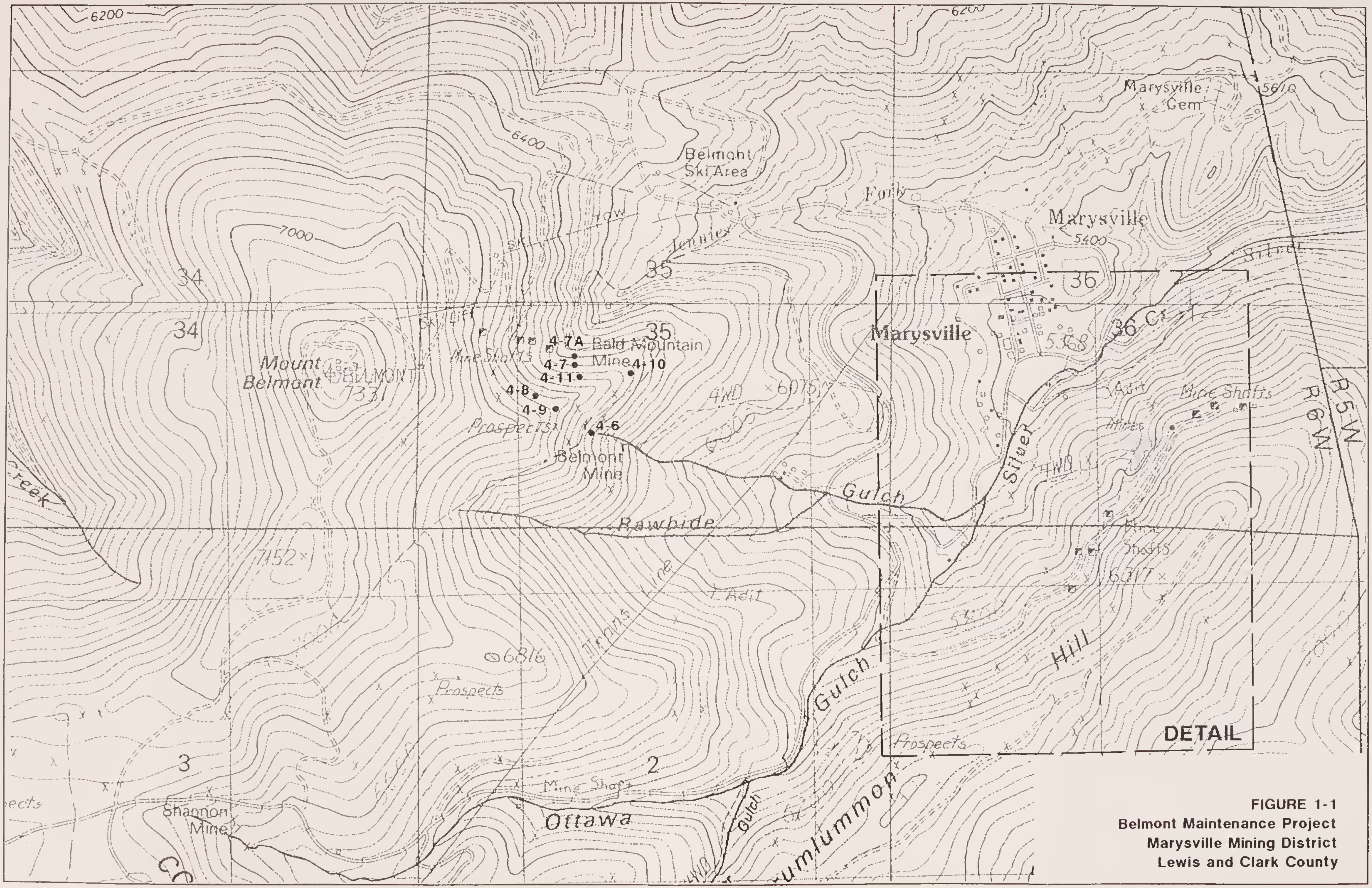


FIGURE 1-1
Belmont Maintenance Project
Marysville Mining District
Lewis and Clark County

2.0 RESPONSIBLE PARTIES

The following people/firms have contributed to the coordination, design, execution, and inspection of the Belmont Maintenance Project.

♦ PROJECT COORDINATION & DESIGN	Chen-Northern, Inc. 1610 B Street P.O. Box 4699 Helena, MT. 59604
♦ ENGINEERING PLAN PREPARATION	Chen-Northern, Inc. 1610 B Street P.O. Box 4699 Helena, MT. 59604
♦ CONTRACTOR	French Construction P.O. Box 4774 Helena, MT. 59604
♦ QUALITY CONTROL INSPECTION	Chen-Northern, Inc. Joe Murphy, Project Inspector
♦ AMRB COORDINATION	Ed Gensler

3.0 CHRONOLOGICAL LISTING OF EVENTS

The Belmont Maintenance Project was constructed during October and November of 1990. The Contractor performed all construction activities according to contract specifications and within the time allowed. The following section describes the sequence of events and milestones for the project.

3.1 MAINTENANCE BID PACKAGE

At the direction of the AMRB, Chen-Northern, Inc. prepared a construction bid package for the Belmont maintenance work. This bid package is contained in Appendix A and was condensed from the AMR standard. Due to the short time frame, Chen-Northern was directed to solicit bids from local contractors and award a contract based on the low bid. The successful contractor performed the reclamation construction as a sub-contractor to Chen-Northern who passed the construction costs on to the AMRB through their engineering contract. Construction bid packages were sent to the following contractors on October 2, 1990:

Scott Construction, East Helena, MT
J & M Contracting, Helena, MT
Grizzly Fence, Helena, MT
French Construction, Helena, MT
Montgomery Construction, Hilger, MT

A pre-bid conference and site showing was conducted on Monday, October 8, 1990 at the Great Divide Ski Area. All sites on the project were visited to acquaint prospective bidders with local conditions and to ensure a complete understanding of specifications.

3.2 PROJECT BIDS

Sealed bids were accepted until 12:00 noon Wednesday, October 10, 1990. Bids were received from the following contractors:

Scott Construction, East Helena, MT	$24,993.00
French Construction, Helena, MT	$24,650.00
J & M Contracting, Helena, MT	$47,208.00

3.3 PROJECT CHRONOLOGY

The Belmont Maintenance Project was awarded to French Construction of Helena, Montana. A copy of their insurance certificate is included in Appendix C. The project was completed within the 30 days allowed. There were no work stoppages although on November 5, 1990 eight to ten inches of snow made access and working conditions difficult. The following chronology presents the sequence of events that lead to completion of the project:

♦ CONTRACTOR	French Construction
♦ NOTICE OF AWARD	October 11, 1990
♦ NOTICE TO PROCEED	October 11, 1990
♦ CONSTRUCTION START-UP	October 17, 1990
♦ SUBSTANTIAL COMPLETION	November 12, 1990

4.0 PROJECT CONSTRUCTION

4.1 DESCRIPTION OF PROJECT PLAN

The Belmont site is owned by and leased to mining companies interested in developing the property as a gold mine. The property has a long history of production. Although a portion of the property is permitted by the Department of State Lands (DSL) for production, the mine openings in question were outside the permit boundaries and eligible for AMR funding. The Great Divide Ski Corporation leases the surface rights to the Belmont property to seasonally operate the ski area. The Belmont Maintenance Project was designed and implemented with the intent of eliminating accidental or unauthorized entry to mine openings within the Great Divide Ski Area.

Backfill was recommended for all mine openings to permanently eliminate the hazards associated with abandoned adit and shaft openings. However the landowner/lessee refused to allow backfill on five of the seven sites, therefore accessing bulkheads (steel grate and shaft culvert) and fences were installed. These alternative methods do accomplish the goals of preventing accidental entry but are semi-permanent in nature and are subject to vandalism.

The steel grate system used as a shaft closure was fabricated by an independent contractor. The grate was available at, and transported from, the DSL storage area located on North Montana Avenue, in Helena, to the project area. This arrangement resulted in cost savings and eliminated the need for additional contract time (which would have been necessary if grate fabrication had been the responsibility of the construction contractor).

Two types of fence enclosures were utilized on the project. A standard farm type five-wire fence was used at a site adjacent to the ski area while an 8' heavy duty chain link fence was installed at two sites within the ski area boundaries where high winds and heavy snow loads were anticipated.

The landowner/lessee whose property was afforded semi-permanent, locking closures were sent a release form from DSL to sign and return regarding the condition of their underground workings. The key receipt and the signed form are included as Appendix B.

4.2 CONTRACTOR'S OPERATION

The project was performed utilizing a crew of two to five men. Terry French was the Contractor/Field Superintendent during the project and the construction crew consisted of Stuart Simpson, Allen Simpson, Chuck Selby and Andy Phillips.

The following list identifies the major equipment used by French Construction during the course of the project:

- Kubota 4X4 Tractor
- John Deere Trackloader
- Michigan 75B loader
- Ford Dump Truck 10 yard
- Ford 1/2 ton 4x4 w/air compressor

4.3 CONSTRUCTION ACTIVITIES/QUANTITIES USED

The Contractor performed the following work during the Belmont Maintenance Project.

- Backfilled two mine openings with 297 cubic yards of material
- Installed one shaft culvert
- Installed one 8'x 16' pre-fabricated steel grate system
- Installed 272 linear feet of farm type 5-wire fence
- Installed 673 linear feet of 8' chain link fence
- Installed 7 Owner-provided hazard signs
- Seeded, fertilized, and mulched all areas disturbed by construction operations

5.0 PROJECT COSTS

5.1 PAYMENT REQUESTS

The total contract amount, paid to the contractor, for the Belmont Maintenance Project was $ 28,930.00 compared to the engineers estimate of $ 23,740.00. One payment request was processed for the Belmont Maintenance Project. Appendix C contains a copy of the Contractor's invoice, materials receipt and a copy of the purchase order issued by Chen-Northern for payment. The Certificate of Substantial Completion and Affidavit on Behalf of the Contractor are also included in Appendix C.

5.2 COST PER MINE OPENING

The cost of reclamation performed for each mine opening is presented in Table 5-1. The total includes $522.19 for the fabrication cost of the steel grate section which was provided to the Contractor to install on the project.

TABLE 5-1
COST PER MINE OPENING

MINE OPENING	QUANTITY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL COST
4-6	272	L.F.	Farm Fence	$10.00	$2,720.00
4-7	172	C.Y.	Backfill	$10.00	$1,720.00
4-7A	125	C.Y.	Backfill	$10.00	$1,250.00
4-8	326	L.F.	Chainlink Fence	$30.00	$9,780.00
4-9	347	L.F.	Chainlink Fence	$30.00	$10,410.00
4-10	1	each	Shaft Culvert	$1250.00	$1,250.00
4-11	1	install	8'x 16' Steel Grate System	$1500.00	$1,500.00
		fabricate		$522.19	$522,19
TOTAL PROJECT COST					$29,452.19

5.3 PROFESSIONAL SERVICE FEES

Services provided by Chen-Northern, Inc. for the Belmont Maintenance Project included site evaluation & lessee coordination, bid document preparation, basic engineering, construction contract administration, quantity accounting, full time resident inspection, and preparation of this final report. Landowner coordination was performed as part of HMO Project 28 design activities. An analysis of fees to coordinate and implement the Belmont Maintenance Project in relation to the Total Project Cost is included as Table 5-2.

TABLE 5-2
ANALYSIS OF PROFESSIONAL SERVICE FEES
BELMONT MAINTENANCE PROJECT

DESIGN COSTS	Site Evaluation, Engineering and Bid Documents	$2,185.44
INSPECTION COSTS	Construction Administration, Construction Inspection and Final Report	$7,069.89
CHEN-NORTHERN, INC. COSTS		**$ 9,255.33**
STEEL GRATE FABRICATION COSTS		$ 522.19
CONTRACTORS CONSTRUCTION COSTS		$ 28,930.00
TOTAL BELMONT MAINT. PROJECT CONSTRUCTION COSTS		**$ 29,452.19**

PERCENTAGE ANALYSIS

Chen-Northern Design Cost/Total Construction Cost	7.4%
Chen-Northern Inspection Cost/Total Construction Cost	24.0%
Total Chen-Northern Cost/Total Construction Cost	**31.4%**

6.0 PROJECT SUMMARY

6.1 SUMMARY OF PROJECT

Given the time of year, rough terrain, and difficult access to each site, it was fortunate that work was interrupted on only two occasions by inclement weather. The close proximity of the mine openings to one another enabled the contractor to work around the weather without having to re-mobilize men and equipment and thereby complete the work as specified and within the time allowed. Management personnel at the Great Divide Ski Area and Gulf Titanium Resources were cooperative and helpful in attaining project goals.

On October 31, 1990 construction activities were completed and all backfilling was completed and all associated disturbed areas were prepared for seeding. However, the specified seed mixture, ordered locally by the Contractor upon Notice of Award, had not yet been received. Due to the imminent threat of winter weather, a substitute seed mixture, utilized by the ski area, was approved for use on the project sites. Although the alternate mixture consisted of different species, the germination and % purity were within acceptable limits. Table 6-1 compares the specified seed mixture with the approved substitution.

TABLE 6-1
SEED MIXTURE
SPECIFIED vs. SUBSTITUTE

SPECIFIED	SUBSTITUTE	% GERMINATION
Orchard Grass	Intermediate Wheatgrass	91
Smooth Bromegrass	Nordan Crested Wheatgrass	96
Common White Clover	Russian Wild Rye	91
Timothy	Pubescent Wheatgrass	95
	Purchased from Treasure State Seed Company in Fairfield, MT. Seed mixture has a purity of 95.03% and contains no noxious weeds.	

6.2 SITE CONDITIONS AFTER COMPLETION

On October 31, 1990, Mr. Ed Gensler, the AMRB representative and the Project Inspector conducted an inspection of work performed to that date. The following observations were noted:

The chain link fence around the large open pit at site #4-9 had inadvertently cut-off access to a newly constructed ski run. Great Divide Ski Area management were notified and an alternate route was selected and cleared by ski area personnel.

6.3 MONITORING AND MAINTENANCE

Periodic monitoring of sites backfilled during the project for subsidence should be conducted to ensure adequacy of the fill. The landowner was offered a "permanent" closure by selecting the backfill option. To minimize any liability to the State, all backfilled mine openings should be inspected on an annual basis for several years following completion of the project. The semi-permanent closures (culvert, grate and fences) installed during the project may protect against unauthorized entry for a limited time. Vandalism and damage due to natural causes has been, and will continue to be a problem with these type of closures. To reduce the public safety hazard associated with damaged closures, a monitoring program should be instituted to inspect all bulkheads and fences periodically. Any human or naturally caused damage should be reported to the landowner for their repair.

Revegetation efforts should be monitored over several years after construction. The results of vegetation inspections on reclaimed sites will provide data on species which can successfully revegetate mined areas. The presence or absence of weeds should also be documented for future weed control plans.

7.0 SLIDES

Before, during, and post-construction slide photographs were taken of each opening. These slides and a slide log are contained in Appendix D.

APPENDIX A

MAINTENANCE BID PACKAGE

Chen-Northern, Inc.

SUBCONTRACT AGREEMENT

THIS AGREEMENT is entered into as of the 11th day of October, 1990, between CHEN-NORTHERN, INC. (CHEN-NORTHERN) and the below-named Subcontractor. All work specified below, which is a portion of the work to be performed by CHEN-NORTHERN for Montana Department of State Lands, Abandoned Mine Reclamation Bureau (CLIENT) shall be performed by the Subcontractor in accordance with all the provisions of the subcontract.

1. WORK TO BE PERFORMED: Except as specified elsewhere in this subcontract, Subcontractor shall furnish all plant, labor, materials, tools, supplies, equipment, transportation, supervision, technical, professional and other services, and shall perform all operations necessary and required to satisfactorily:
   1. Backfill Mine Openings
   2. Install shaft culvert
   3. Install steel grate system — BELMONT MAINTENANCE PROJECT
   4. Erect chain link and farm fence
   5. Install Hazard Signs
   6. Revegetate disturbed areas

2. TERMS AND CONDITIONS: The terms and conditions on the reverse side are a part of this agreement, and if attached, those terms set forth in Exhibit "A" attached to this Subcontract Agreement.

   Exhibit A - Project Specifications Document

3. COMPENSATION: As full consideration for the satisfactory performance by the Subcontractor of this subcontract, CHEN-NORTHERN shall pay to Subcontractor compensation in accordance with the prices

   set forth in the attached purchase order number 05637 and with the payment provision of the "Terms and Conditions" made a part of this agreement.

CHEN-NORTHERN:	SUBCONTRACTOR:
Chen-Northern, Inc.	French Construction
1610 B Street, P.O. Box 4699	P.O. Box 4774
Helena, MT 59601 (443-5210)	Helena, MT 59601 (227-5447)
BY: Jeremiah B. Bowers	BY: Gary French
DATE: Oct 11, 1990	DATE: Oct 11 1990

RECLAMATION PROPOSED FOR BELMONT MINE

SITE #4-6

Stope approx. 40x30x25 located above the East Belmont Mine. Approx. 160 LF of 5-wire farm fence and two (2) Hazard Signs required. Foot access only to this site (250').

SITE #4-7

Shaft approx. 10x10x40 located within the ski area boundaries. Approx. 150 CY of backfill material needed. Prior to backfilling, wood debris and tree branches must be removed to existing slash piles. Steep terrain. Site approx. 50 feet above access road. Seed, fertilize and mulch.

SITE #4-7A

Shaft approx. 4x4x50 located within the ski area boundaries. Approx. 50 CY of backfill material needed. Prior to backfilling, wood debris and tree branches must be removed to existing slash piles. Site adjacent to access road. Seed, fertilize and mulch.

SITE #4-8

Stope and subsidence approx. 100x30x70 located within the ski area boundaries. Approx. 300 LF of 8' chain link fence required. Two (2) Hazard Signs will be installed at this location. Signs are to be attached to corner posts as directed by the Engineer. Corner posts used for signs shall be a minimum fourteen (14') feet in length. Steep, timbered terrain with no vehicle access. Timber and brush clearing necessary.

SITE #4-9

Stope approx. 150x50x30 located within the ski area boundaries. Approx. 300 LF of 8' chain link fence required. Three (3) Hazard Signs will be installed at this location. Signs are to be attached to corner and end posts as directed by the Engineer. Corner and end posts used for signs shall be a minimum of fourteen (14') feet in length. One (1) Hazard Sign will be installed on an 8' post below the mine opening. Steep, rocky terrain.

BID SHEET

Item No.	Estimated Quantity	Unit	Description	Unit Price	Total Price
1.	1.0	LS	Mobilization	XXXX	——
2.	200	CY	Backfill Mine Openings	10.00	2000.00
3.	1	EA	Steel Grate System (Prefab. Install)	1500.00	1500.00
4.	1	EA	Shaft Culvert	1250.00	1250.00
5.	8	EA	Attaching Permanent Owner-Provided Signs	——	——
6.	600	LF	8' Chain Link Fence	30.00	18,000.00
7.	160	LF	Farm Fence (Type F-5)	10.00	1600.00
8.	1.0	LS	Misc. Site Work	XXXX	300.00 CTF

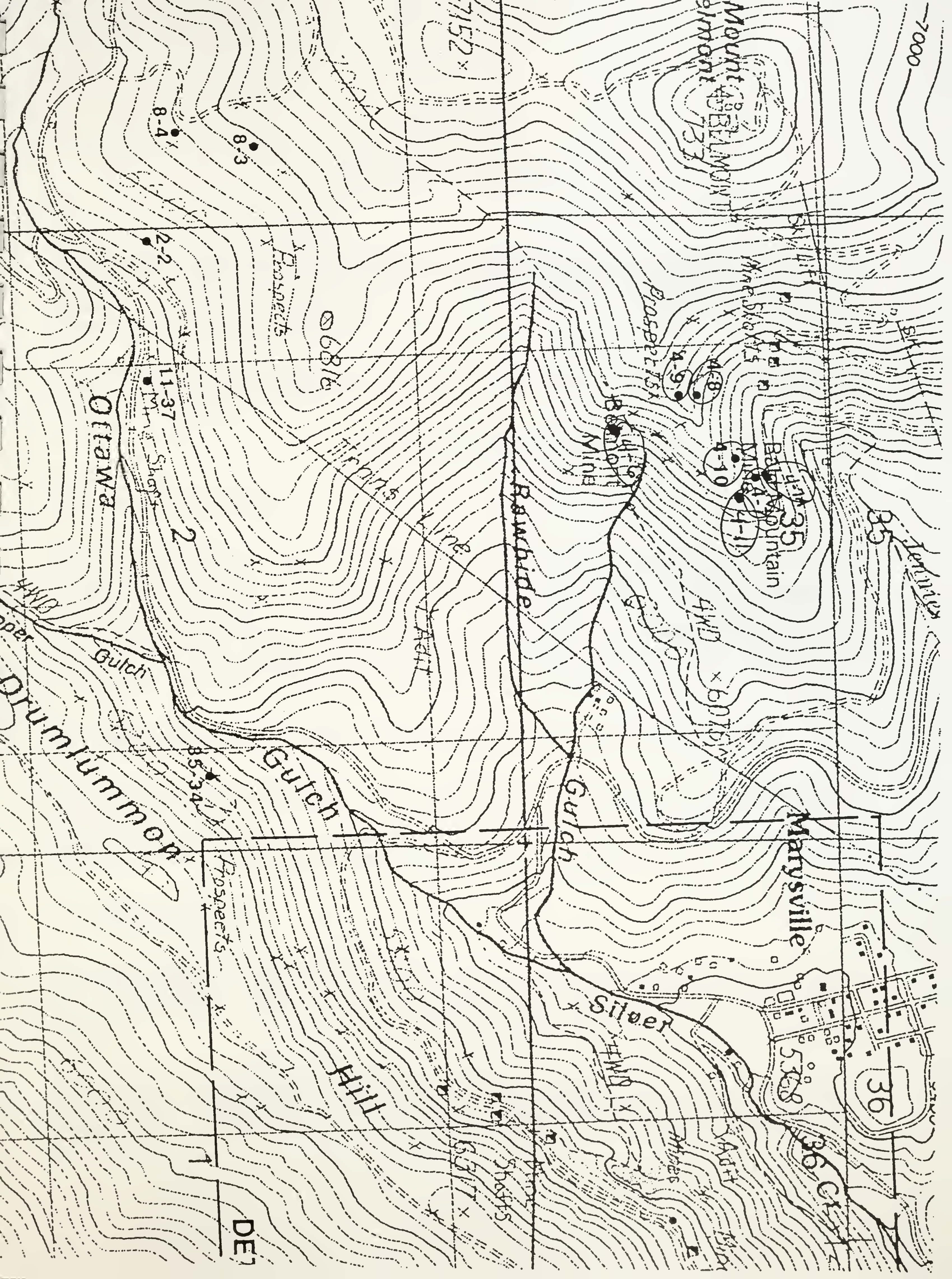
TOTAL BASE BID: # 24,650.00

Twenty four thousand six hundred fifty & no/100

Price in Words

ITEM #3 (Alternate)

1	EA	Fabricate & Install Steel Grate System	2500.00	2500.00


7000
Mount Belmont
7152
8-4
8-3
2-2
Prospects
6691
Ottawa
11-37
2
Trans Line
Rawhide
Gulch
Bald Mountain
Mine
4-8
4-9
4-10
4-11
35
4WD
Marysville
Gulch
Silver
Hill
Drumlummon
Gulch
85-34
Prospects
Shafts
Adit
5378
36
1
DE

SECTION IV

SPECIAL PROVISIONS

This section of the Contract Documents covers special conditions applicable to this project that are not covered by the Terms and Conditions or Technical Specifications. In case of conflict between the Special Provisions and the Terms and Conditions or the Technical Specifications, the Special Provisions shall govern.

Any subsequent addenda issued after these documents have been prepared shall supplement and/or supersede any article of the Specifications.

GENERAL INFORMATION

4.1 SCOPE OF WORK

The work under this contract includes seven (7) mine openings at the Great Divide Ski area approximately 20 miles northwest of Helena in Lewis and Clark County, Montana.The purpose of the project is to eliminate or minimize the hazards associated with the abandoned mine openings by such methods as backfilling, installing shaft culverts and steel grate shaft covers, fencing and owner-provided warning signs. All areas disturbed by construction operations will be seeded, fertilized and mulched.

4.2 DESCRIPTION OF WORK ITEMS, MEASUREMENT AND PAYMENT

General - The project provides for lump sum prices for mobilization and miscellaneous site work, which includes seed, fertilizer, mulch, and installing padlocks. Unit prices will be utilized for backfilling mine openings, shaft culverts, steel grate systems, chain link and farm fencing, attaching permanent owner-provided signs and equipment use.

4.3 MOBILIZATION

This item covers the mobilization and demobilization of all equipment, supplies, personnel and other incidental items for this project, that are not part of any other payment item. Included in this item is moving personnel and equipment between individual sites within the project.

Measurement and Payment - the Original Contract amount is the total price of the Contract as bid and includes the mobilization item. Payment will be made upon completion of the work.

4.4 BACKFILLING MINE OPENINGS

This work consists of backfilling the shafts and stopes at the applicable sites listed in this Section and shown on the site maps contained in this Section. The backfill quantity shown on the Proposal Bid Sheet is estimated from the total of the individual opening dimensions, and it is understood and agreed that actual quantities may be substantially different than those shown. Backfill quantities will be measured using one of the methods described as follows:

1. The volume will be measured by the quantity of loose material in the loader bucket times the number of bucket loads deposited into the mine opening.

2. The volume will be determined by the measurements of the mine dump used for backfill, before and after backfilling.

3. The volume will be determined by the measurements of the mine opening to be backfilled.

If site grades are altered to provide equipment access, the disturbed areas will be regraded to the original contour and revegetated upon completion of backfilling operations, at no additional cost to the owner.

Payment for this item will be at the Contract unit price bid per cubic yard for Backfilling Mine Openings and will be full compensation for all labor, equipment, tools, and incidentals to complete the work as specified.

4.5 SHAFT CULVERTS

This work consists of closing a shaft with a culvert and locking door (hatch) and backfilling around the pipe to completely close the opening. At site #4-10 a 3' diameter culvert twelve feet (12') in length will be installed and anchored with concrete and rebar in accordance with the Standard Drawings and Details included in Section V - Technical Specifications

Shaft culverts with locking hatches will be measured and paid at the Contract unit price bid by numerical count, for Shaft Culverts, for each complete installation. Installation shall include all materials, labor, equipment, tools, and incidentals necessary to complete the work as specified.

4.6 STEEL GRATE SYSTEMS

A steel grate system shall be installed over the shaft at the site identified in this Section. The steel grate system will be furnished by the Owner in accordance with the Standard

Farm Fence shall be measured by the lineal foot of fence installed excluding openings for gates, cattle guards, or other such openings. The measurement shall be made along the top wire, or a line parallel thereto, from end post to end post.

Payment for Farm Fence shall be made at the Contract unit price quoted per lineal foot of fence installed, which price and payment shall be full compensation for providing all labor, materials, equipment, tools, and incidentals necessary to complete the work as specified.

4.9 CHAIN LINK FENCE

This work consists of erecting new chain link fence eight (8) feet in height around two mine openings as called for at the sites identified and shown on the maps contained in this Section. The quantities identified for chain link fence on the Proposal Bid Sheet are only approximate. Actual chain link fence quantities may be more or less than those shown on the Bid Sheet. The exact location of the new fence will be determined and staked in the field by the Engineer prior to placement. No chain link fence installation is to be undertaken by the contractor without the consent of the Engineer.

Hazard signs will be attached to selected end, corner, or pull posts in the chain link fence as directed by the Engineer. Five (5) end, corner or pull posts should be a minimum of fourteen (14) feet in overall length to accommodate sign placement.

Chain link fence shall be measured by the lineal foot of fence installed. The measurement shall be made along the top wire, or a line parallel thereto, from end post to end post.

Payment for Chain Link Fence shall be made at the Contract unit price quoted per lineal foot of fence installed, which price and payment shall be full compensation for providing all labor, materials, equipment, tools and incidentals necessary to complete the work as specified.

4.10 MISCELLANEOUS SITE WORK

All areas disturbed by the Contractor's work operation will require seeding, fertilizing, and mulching.

4.10.1 Seed and Fertilizer. This work item consists of seedbed preparation, furnishing and applying fertilizer and planting seed, and any cleanup required as a result of these operations.

- Seedbed Preparation - Prior to executing the seeding, fertilizing, and mulching work items, the seedbed at all sites shall be prepared so these items can most efficiently be completed in conformance with the Technical Specifications. The seeding, fertilizing, and mulching work items shall be executed only after the seedbed has been accepted by the Department's Representative.

All areas disturbed by construction operations shall be prepared for seeding by spreading of topsoil (where available) and tracking as described in the Technical Specifications.

- Fertilizer - Fertilizer shall be applied at the rates specified below. Fertilizer shall be applied to the prepared seedbed prior to seeding or mulching and shall be blended with the topsoil as called for in the Technical Specifications.

  All areas shall be fertilized with an inorganic chemical fertilizer with the following nutrients:

  Fertilizer Mixture: 20-10-0 Application Rate: 100 lbs/acre. All required fertilizer certificates shall be provided to the Department's Representative a minimum of three days prior to fertilizing. The certification shall include the guaranteed analysis of the fertilizer(s) stated in terms of the percentages of nitrogen (N), available phosphorus (P_2O_5) and potash (K_2O) in that order.

- Seed Certification - Seed certifications as required by the Technical Specifications shall be submitted to the Department's Representative prior to any seeding. The Contractor shall also submit a copy of the bill or other documentation from the seed supplier showing actual bulk weights of the individual seed types combined in the mix.

- Seeding - Prior to mulching, seed mixture shall be applied by mechanical broadcasting at the application rate of 20 pounds per acre. The species and application rates of pure live seed (PLS) are as follows:

SEED MIX

SCIENTIFIC NAME	VARIETY	COMMON NAME	LBS/ACRE*
Dactylis glomerata	Paiute	Orchard Grass	10
Bromus inermis	Manchar	Smooth Bromegrass	4
Phleum pratense	Climax or equivalent	Timothy	4
Trifolium repens	US origin	Common White Clover	2
	TOTAL		20

* Pounds pure "live seed" per acre (LBS/ACRE PLS)

Seed containing noxious weed seed will not be accepted.

4.10.2 Mulch - After all seedbed preparation, fertilizing and seeding has been accomplished, wood fiber shall be hydraulically applied at the rate of 2,000 pounds per acre. At remote sites where access is limited and hydromulching equipment cannot reach the site, the Contractor shall apply straw mulch at the rate of 3,000 pounds per acre.

Prior to submitting his bid, it shall be the Contractor's obligation to review the individual sites and determine the approximate acreage which will require seeding, fertilizing, and mulching based on his anticipated construction activities.

These items will not be measured for payment; however, quantities will be measured to assure that the work is accomplished in accordance with the specifications.

Full payment for the work completed under this item shall be included in the lump sum price bid for MISCELLANEOUS SITE WORK. No additional compensation will be allowed the Contractor regardless of the actual acreage which will require seeding, fertilizing, mulching and weed control.

The full lump sum amount bid for MISCELLANEOUS SITE WORK will be paid upon completion of all work for the project. This payment will include all labor, materials, equipment, tools, and incidentals necessary to complete the miscellaneous site work.

LIST OF ESTIMATED WORK QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	PROJECT TOTAL
1.	Mobilization	LS	1.0
2.	Backfill Mine Openings	CY	200
3.	Steel Grate Systems (Prefabricated installation)	EA	1
4.	Shaft Culvert (3, Dia.)	EA	1
5.	Attaching Permanent Owner-Provided Signs	EA	8
6.	Chain Link Fence (8')	LF	600
7.	Farm Fence (Type F-5)	LF	160
8.	Miscellaneous Site Work	LS	1.0

NOTE: ITEM #3

Site #4-11 specifies a prefabricated steel grate system. However, access to the area may preclude the installation of a prefabricated grate. In which case, bidders must provide a bid for all labor, materials, tools and equipment necessary to fabricate and install a steel grate system on-site.

The quantities listed on this page are intended to be a guide for bidding purposes only. The Owner and Engineer do not guarantee the accuracy of the quantities listed herein. In the event that additions to, or deductions from, these quantities the Contractor agrees that the Contract unit prices shall be used in making additions and deductions from the Contract amount.

TECHNICAL SPECIFICATIONS

5.0 Mobilization

5.1 Backfilling Mine Openings

5.2 Shaft Culverts

5.3 Steel Grate Systems

5.4 Farm Fence

5.5 Chain Link Fence

5.6 Attaching Permanent Owner - Provided Signs

5.7 Seed and Fertilizer

5.8 Mulch

SUBSECTION 5.0 MOBILIZATION

5.0 DESCRIPTION

This work shall consist of the preparatory work and operations necessary for the movement of personnel, equipment, supplies and incidentals to the project site, and for all other work and operations that must be performed or that cause costs to be occurred prior to beginning work on the various items on the project site. Included in this item is moving personnel and equipment between individual sites within the project area.

SUBSECTION 5.1 BACKFILLING MINE OPENINGS

5.11 DESCRIPTION

This work consists of closing open mine shafts and adits by backfilling them. It also includes any necessary clearing of trees and brush, salvaging and replacing topsoil, and finish grading the work area to match surrounding natural ground.

5.12 MATERIALS

Mine tailings adjacent to shafts and/or adits designated for backfilling shall be used as backfill material unless noted otherwise. In cases where tailings are insufficient or there are no tailings next to the shaft or adit, the Contractor shall have to locate and secure a borrow site from which he can obtain backfill material. All borrow sites the Contractor proposes to use must be approved by the Engineer.

Where topsoil exists in the areas from which backfill is to be taken, the topsoil shall first be salvaged by dozing or otherwise placing it adjacent to the work area. Following backfill operations, topsoil, where applicable, shall be replaced on the disturbed areas, leveled and shaped to blend with the surrounding ground.

It is not permissible to dispose of miscellaneous timber and other scrap cleaned up from the site into the bottom of shafts designated for backfilling.

5.13 SHAFTS

To account for settlement, shafts shall be backfilled to a finish elevation above the surrounding natural ground equal to 5% of the shaft depth or as directed by the Engineer. Compaction shall be obtained by wheel rolling at

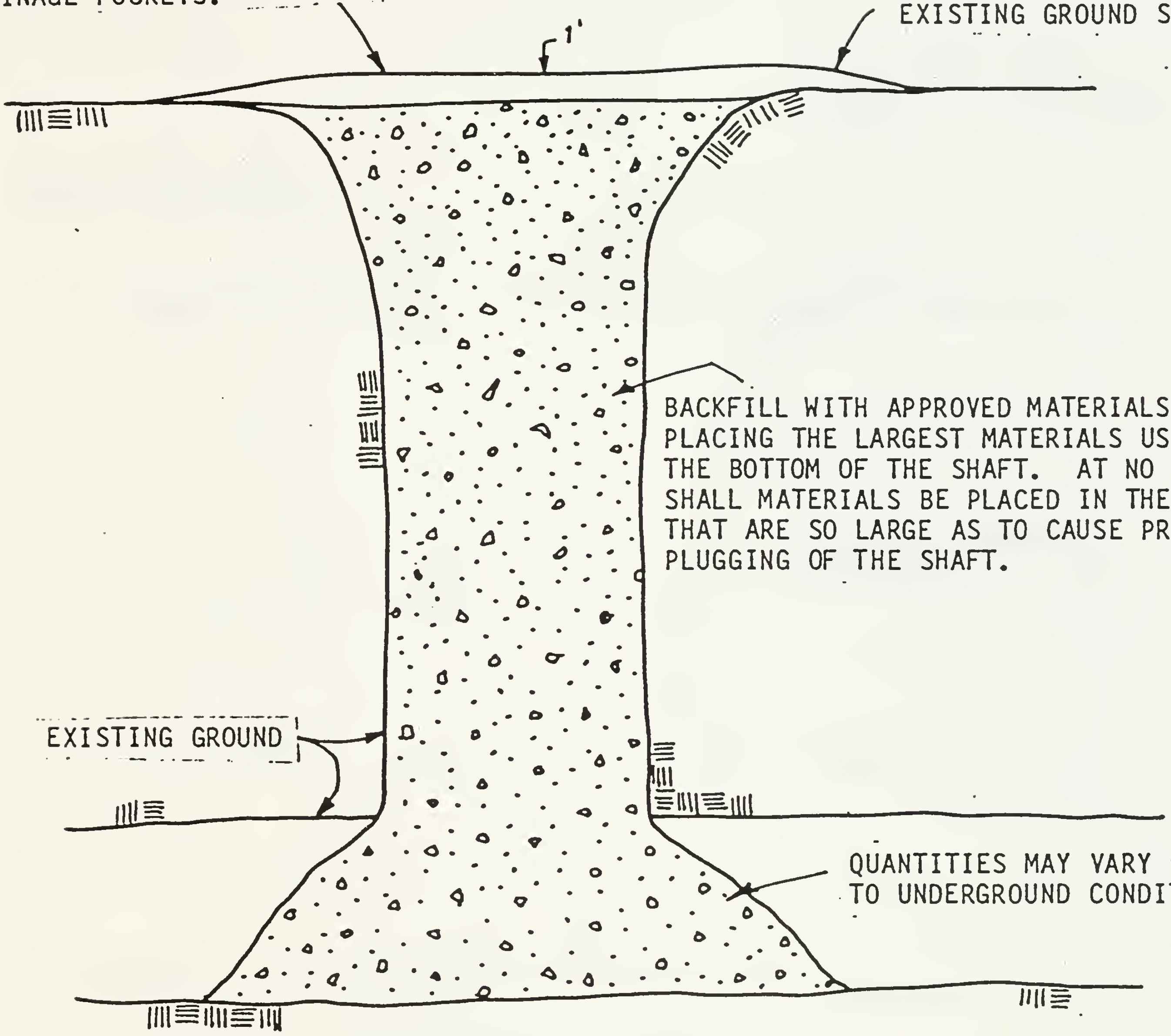
the surface with a dozer or loader until surface is firm. The work area shall then be graded to achieve a smooth transition to natural ground. The attached sketch is to be used as a guide for this work operation.

5.14 CLEARING

Where it is necessary, the Contractor may clear trees that interfere with his work with consent from the Engineer. The Contractor must dispose of all trees he cuts down.

PREPARE FOR SEEDING BY SPREADING TOPSOIL UNIFORMLY OVER THE DISTURBED AREAS, LEAVING A ROUGH SURFACE TEXTURE WITHOUT DRAINAGE POCKETS.

2H:1V MAXIMUM SLOPE, SMOOTH TRANSITION WITH EXISTING GROUND SURFACE



BACKFILL WITH APPROVED MATERIALS BY PLACING THE LARGEST MATERIALS USED AT THE BOTTOM OF THE SHAFT. AT NO TIME SHALL MATERIALS BE PLACED IN THE SHAFT THAT ARE SO LARGE AS TO CAUSE PREMATURE PLUGGING OF THE SHAFT.

EXISTING GROUND

QUANTITIES MAY VARY DUE TO UNDERGROUND CONDITIONS

NOTE:

ALL EXPOSED TIMBERS, TIES, BRUSH, TREES, TRASH, AND OTHER COMBUSTIBLE MATERIALS FOUND IN THE MINE OPENING WORK AREA SHALL BE DISPOSED OF. IN NO CASE WILL SUCH MATERIALS BE PLACED DOWN THE SHAFT.

METAL, STEEL PIPE, RAILS, CONCRETE, AND OTHER LIKE STRUCTURAL MATERIALS FOUND AROUND THE MINE OPENING SHALL BE BROKEN DOWN AND BURIED IN THE OPENING OR REMOVED AS DIRECTED.

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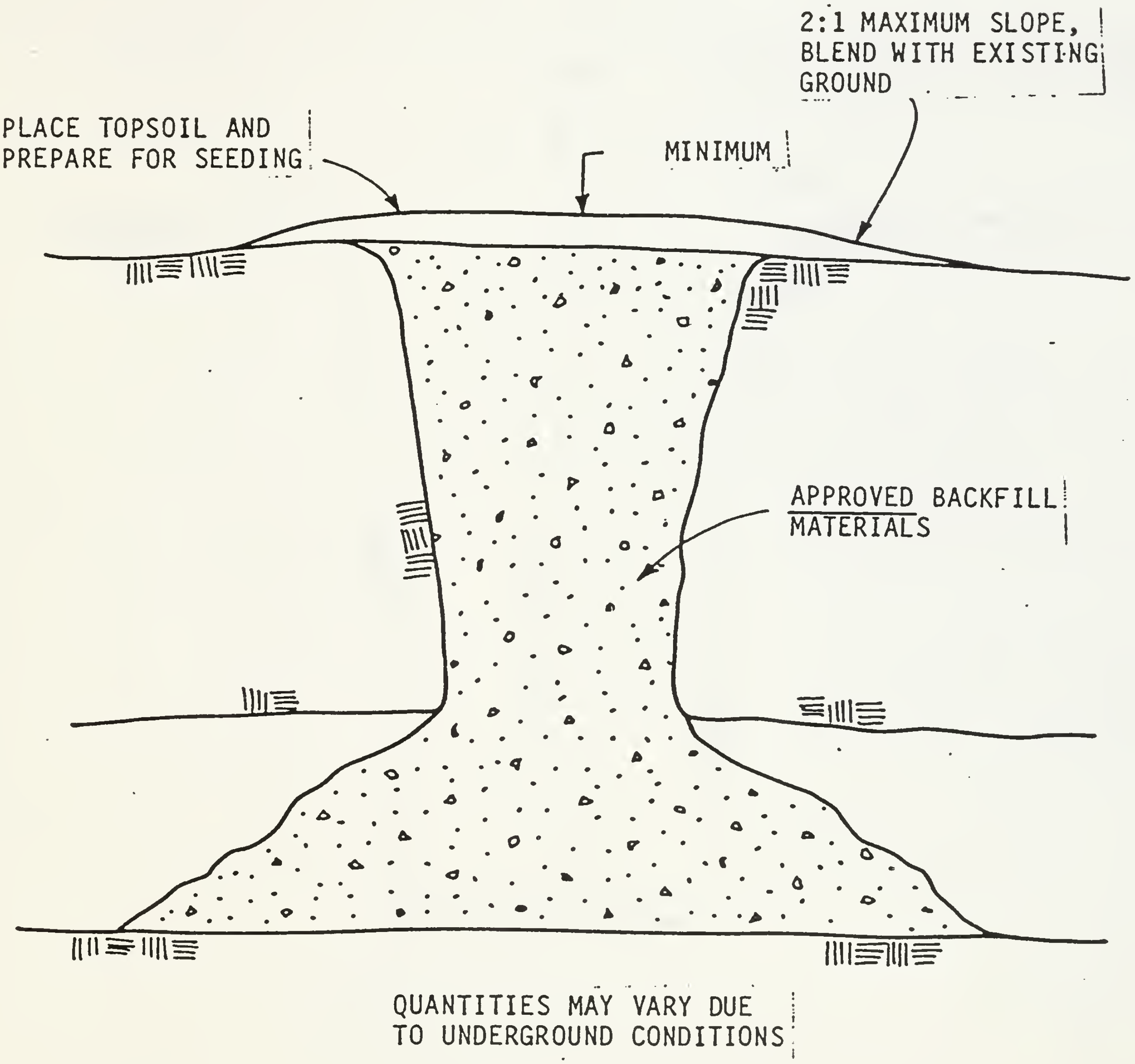
SHAFT CLOSURE
DETAIL

DRAWING No.


2:1 MAXIMUM SLOPE, BLEND WITH EXISTING GROUND
PLACE TOPSOIL AND PREPARE FOR SEEDING
MINIMUM
APPROVED BACKFILL MATERIALS
QUANTITIES MAY VARY DUE TO UNDERGROUND CONDITIONS

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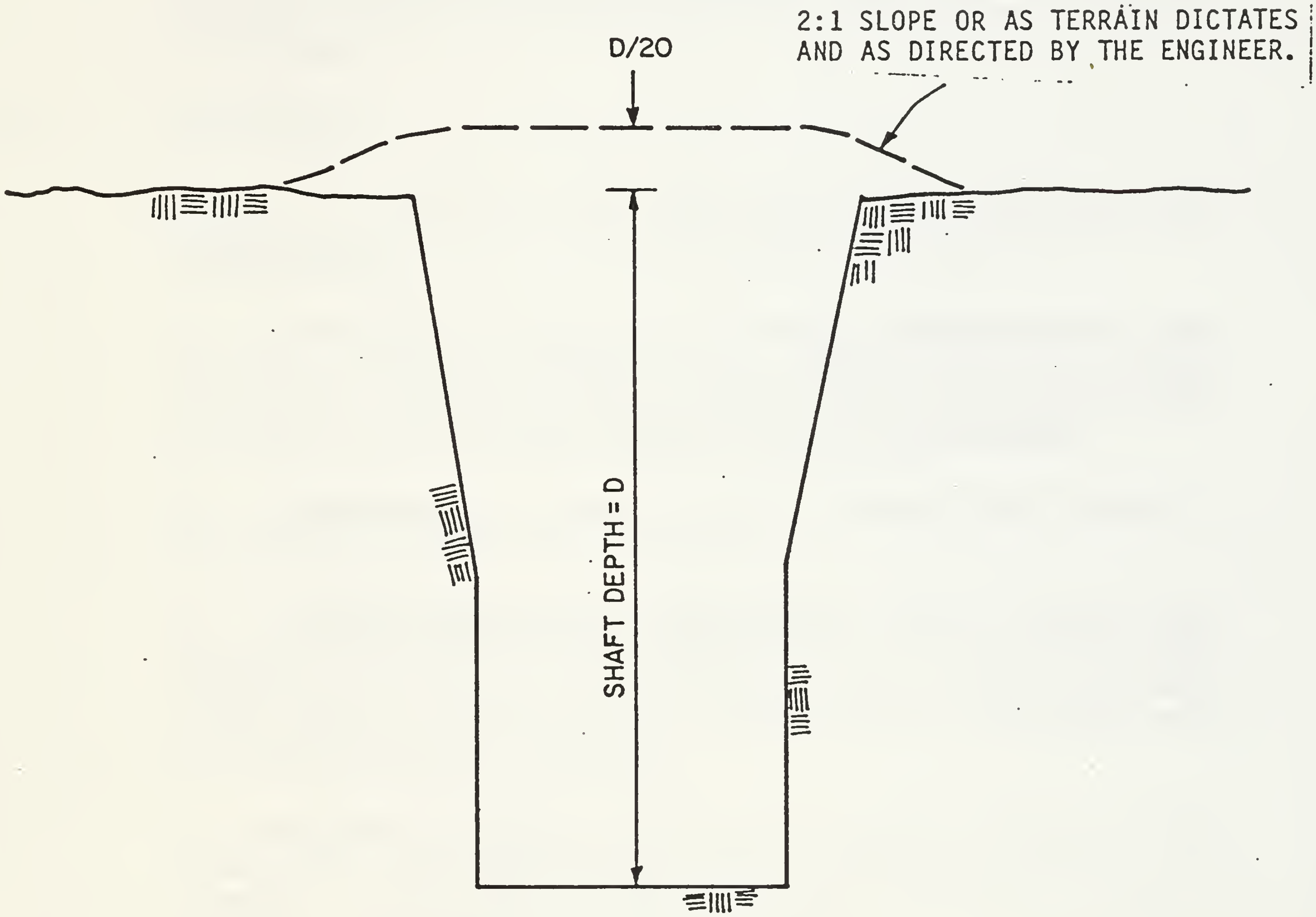
SHAFT CLOSURE

DRAWING No.


2:1 SLOPE OR AS TERRAIN DICTATES
AND AS DIRECTED BY THE ENGINEER.
D/20
SHAFT DEPTH = D

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BACKFILL SHAFT
DETAIL

DRAWING No.

SUBSECTION 5.2 SHAFT CULVERTS

5.21 DESCRIPTION

The work consists of furnishing and closing a shaft with a culvert and a locking door (hatch) in accordance with these specifications and the attached standard figures.

5.22 MATERIALS

All materials used in the construction of the culvert seal shall be new materials meeting the following requirements and those called for on the attached figures.

A. CONCRETE - Concrete, if required, for a headwall shall be Class "AD" concrete as outlined in the Montana Highway Department Standard Specifications. Materials, mixing and placement of the concrete shall conform to Section 40 of the Montana Highway Department Specifications.

B. REINFORCING STEEL - shall be deformed bars meeting the requirements of ASTM A-615 Grade 60.

C. CORRUGATED METAL PIPE (CMP) - shall be corrugated metal pipe (0.064 thickness) sized to appropriately fit the mine portal opening, supplied by the Contractor from Armco or an approved equal. Pipe bands and hardware for connecting pieces or pipe, if they are needed, shall come from the same supplier as the pipe.

D. BACKFILL MATERIAL - Mine waste rock dumps adjacent to shafts designated for shaft culverts shall be used as backfill material unless noted otherwise. In cases where the quantity of waste is insufficient or there are none next to the shaft or adit, the Contractor shall have to locate and secure a borrow site from which he can obtain backfill material. All borrow sites the Contractor proposes to use must be approved by the Engineer.

5.23 CONSTRUCTION REQUIREMENTS

A smooth and uniform pipe bed shall be formed prior to placing the pipe.

Where a concrete headwall is specified, the concrete shall be sprayed with an approved curing compound. All concrete surfaces shall be kept moist with a fine water spray or wetted burlap until the sealing compound is applied. The concrete shall be cured for 7 days.

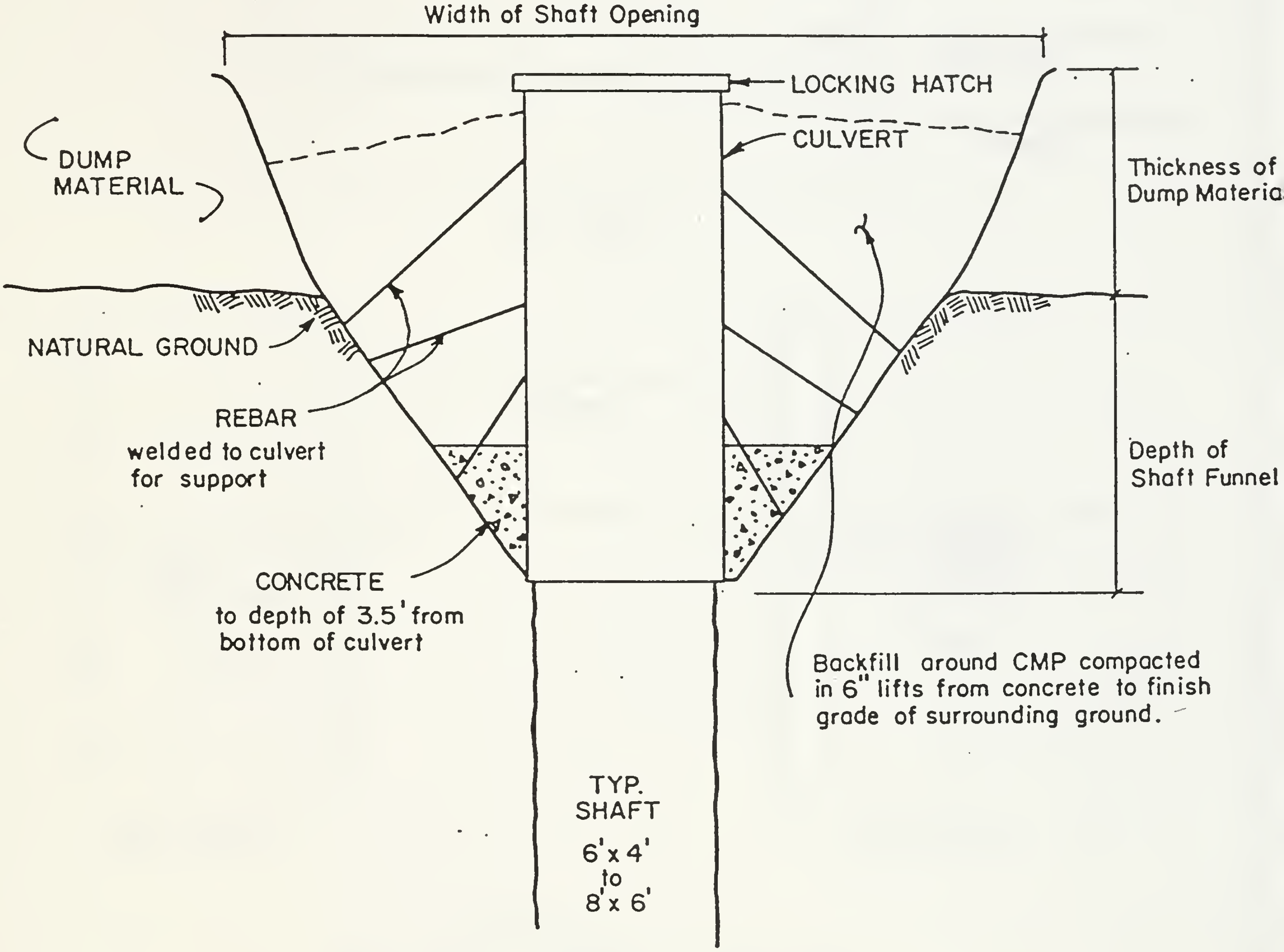
Where backfilling around the exterior of the corrugated metal pipe is required, backfill material shall be mechanically compacted in 6 inch lifts until reaching the top of the pipe. Thereafter, backfill material shall be placed to the finish grade shown on the attached drawing.

All welding shall comply with the requirements of current editions of the American Welding Society.

All miscellaneous steel shall have one shop coat of zinc phosphate or red oxide metal primer, or equivalent. The final coat shall be of dark brown weather resistant outdoor paint

A lock equivalent to Master Lock No. 15-D, pin tumbler super security padlock and 2 keys shall be provided with the door (hatchway).

"I" bolts shall be of such length as to extend entirely through and one-half inch beyond their furthest nuts.


Width of Shaft Opening
LOCKING HATCH
CULVERT
DUMP MATERIAL
Thickness of Dump Materia
NATURAL GROUND
REBAR welded to culvert for support
Depth of Shaft Funnel
CONCRETE to depth of 3.5' from bottom of culvert
Backfill around CMP compacted in 6" lifts from concrete to finish grade of surrounding ground.
TYP. SHAFT
6'x 4' to 8'x 6'

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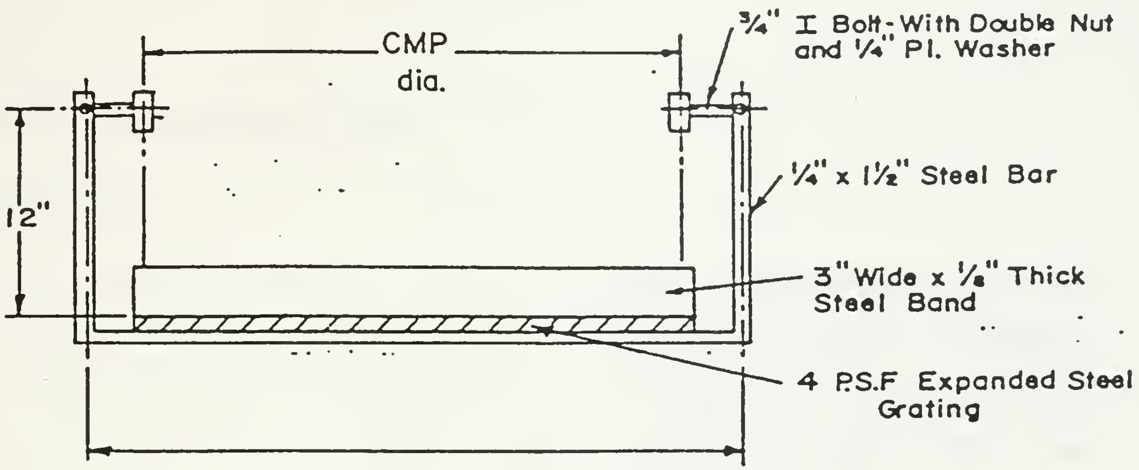
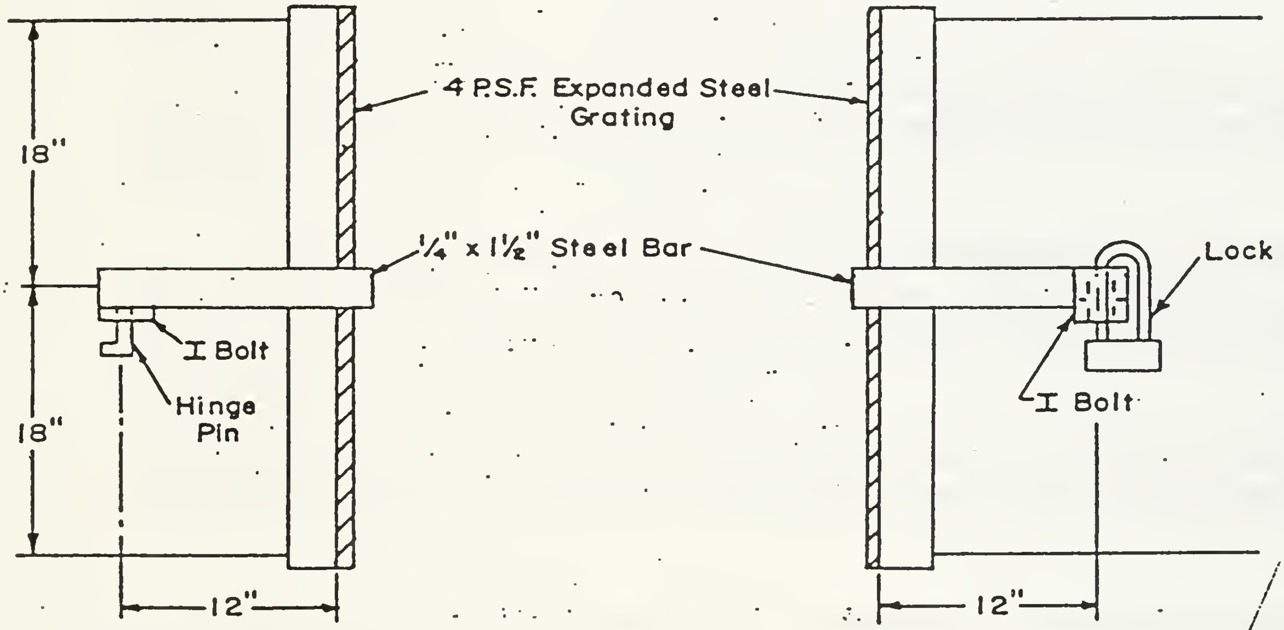
SHAFT CLOSURE
CULVERT

DRAWING No.

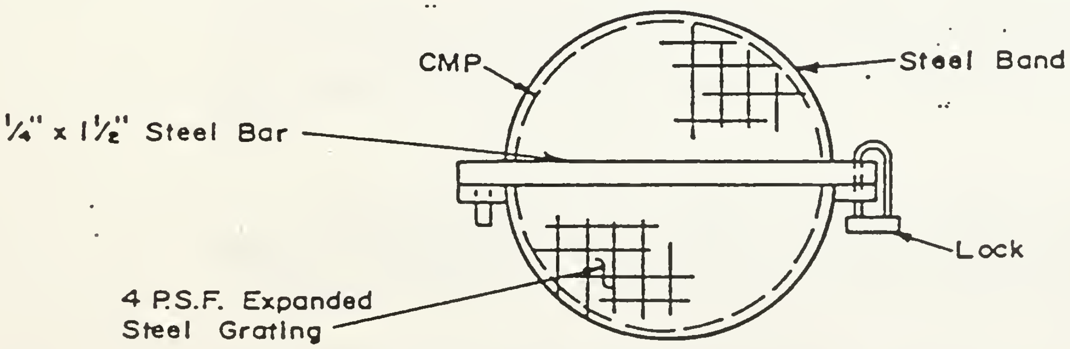

¾" I Bolt- With Double Nut and ¼" Pl. Washer
CMP dia.
12"
¼" x 1½" Steel Bar
3" Wide x ⅛" Thick Steel Band
4 P.S.F Expanded Steel Grating
dia.+6

TOP VIEW



LEFT SIDE

RIGHT SIDE



FRONT VIEW

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CULVERT HATCH DETAIL

DRAWING No.

SUBSECTION 5.3 STEEL GRATE SYSTEM

5.31 DESCRIPTION

This work consists of building a level pad, or uniform sloped pad to place the grate on, excavating for concrete footings and placing concrete footings or installing rock bolt anchors, installing steel framing members and steel grating, and installing a hatchway. The work shall be accomplished in accordance with these specifications, and attached drawings. The steel framing members, steel grating and hatchways will be supplied by the Owner.

5.32 MATERIALS

All materials used in construction of steel grate system shall be new materials meeting the following requirements and those called for on the attached drawings:

A. Concrete footings shall be class "AD" as outlined in the Montana Department of Highways Standard Specifications. Materials, mixing, and placement of the concrete shall conform to Section 40 of the Montana Department of Highways Specifications.

B. Rock bolts shall be 18 inch ASTM A-615 threaded bar, or as approved by the Engineer, secured in accordance with the Manufacturers recommendations.

C. Structural steel shall conform to the requirements for structural carbon steel, ASTM A-36.

D. Bolts and nuts shall conform to the requirements of ASTM A-307 Grade A with hexagonal heads and nuts for steel machine bolts and nuts and tap bolts. Bolts furnished shall be unfinished bolts (ordinary rough or machine bolts).

E. Grating shall be 4 psf expanded metal grating made of carbon steel conforming to ASTM designation A-283-46T. The spacing between framing members is designed to accommodate 4' x 8' sheets of grating.

5.33 CONSTRUCTION REQUIREMENTS

A. CLEARING AND LEVELING - Irregularities in the ground around the shaft opening where the grate is to be installed shall be corrected, as directed, by use of dozer or with other equipment that will perform a satisfactory job.

Gaps between the natural ground and bottom of steel beams shall be 2 to 6 inches.

In performing the operation of clearing and leveling, a minimum amount of terrain shall be disturbed.

B. CONCRETE PEDESTALS - Concrete shall be allowed to cure for 7 days. The concrete shall be sprayed with an approved curing compound. All exposed concrete surfaces shall be kept moist with a fine water spray or wetted burlap until the sealing compound is applied.

C. ROCK BOLT ANCHORS - Before installation, clean anchor bars of rust, scale, grease, mud, and other foreign material.

Fill hole with water prior to installation. Blow water out with air jet.

Completely fill holes with grout, place and vibrate or rap anchor bars to full embedded length before grout takes initial set.

Ensure against any movement of bars after placement and before grout reaches 1,500 psi.

D. FABRICATING STEEL - Holes for bolts shall be punched or drilled as shown on the attached drawing-one-sixteenth inch larger than the nominal diameter of the bolt. Joints of strength equivalent to bolted connections may be used subject to the Engineer's approval of shop drawings submitted by the Contractor prior to fabrication.

E. SHOP PAINT - All metal surfaces, except surfaces to be in contact after erection, shall receive one coat of zinc phosphate or red oxide metal primer, or equivalent. The prime coat shall be applied immediately after fabrication and shop cleaning. The final coat shall be of dark brown weather-resistant outdoor paint.

F. ASSEMBLING STEEL - The parts shall be accurately assembled as shown on the attached drawing. At the time of assembly, steel surfaces in contact for field connection shall be thoroughly cleaned of rust, mill scale, dirt, grease or other foreign material. No paint shall be applied to contact surfaces prior to bolting.

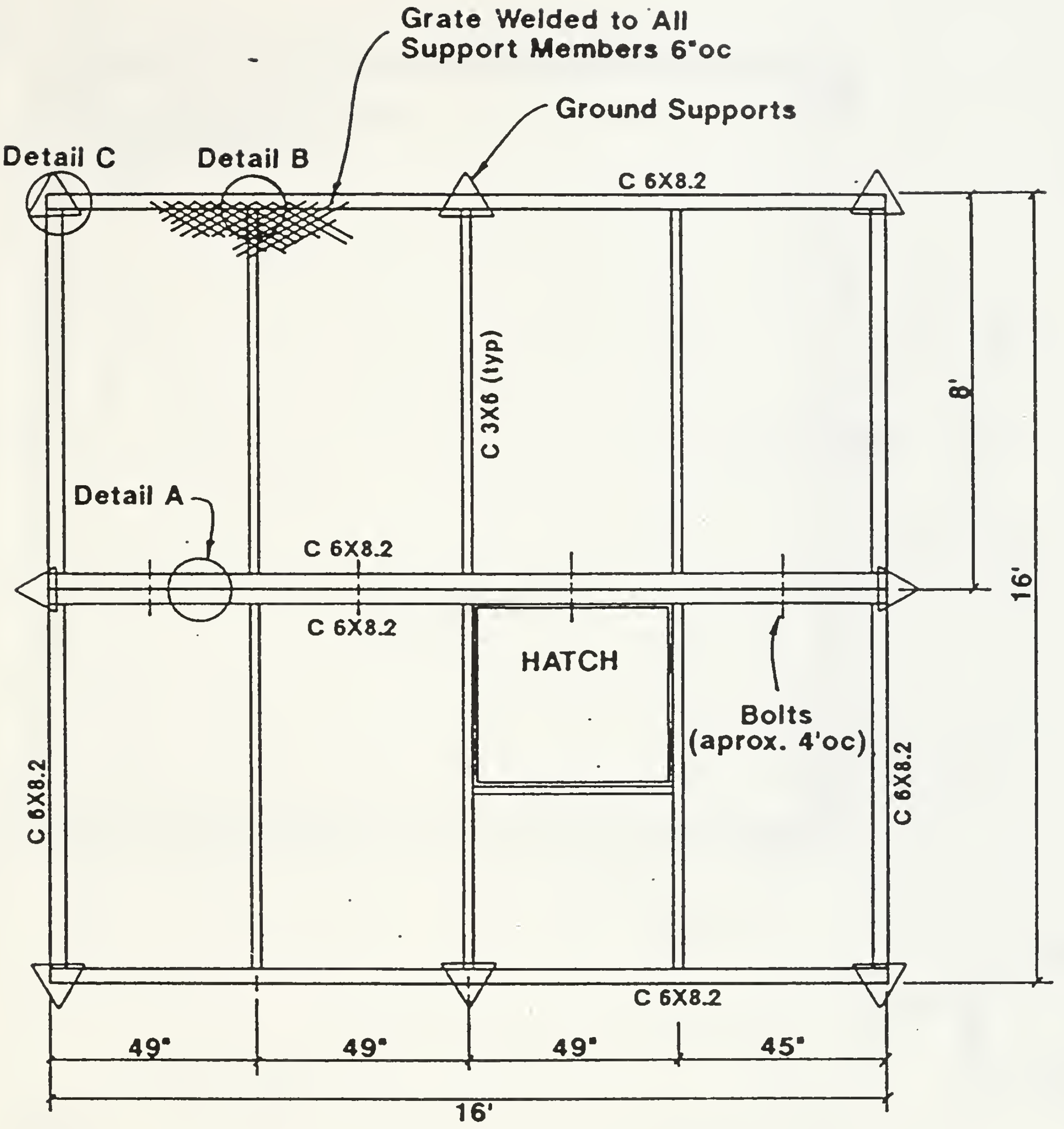
G. BOLTED CONNECTIONS - Bolts shall be of such length that they extend entirely through their nuts, but not more than one-quarter inch beyond them.

Bolts shall be installed with a hardened washer under the nut or bolt head, whichever is the element turned on tightening.

H. EXPANDED METAL GRATING - Grating shall be positioned with the long way of the design parallel to the clearspan (i.e. 4 feet direction). Edges of sheets of grating shall be flush with the outside edge of outer beams and butt against each other at the centerline of interior beams. Grating shall be welded to all support members at 6 inch centers.

I. WELDING - All welding shall comply with the requirements of current editions of the American Welding Society.

J. HATCHWAYS - Shall be built as shown on the attached drawings at those sites where they are specifically called for. Where hatchways are called for, a lock equivalent to Master Lock No. 15-D, Pin Tumbler Super Security Padlock and two (2) keys shall be provided.



NOTE: The weight of the 16 x 16 foot steel grate system is 1900 ± pounds or approximately 950 pounds per section.

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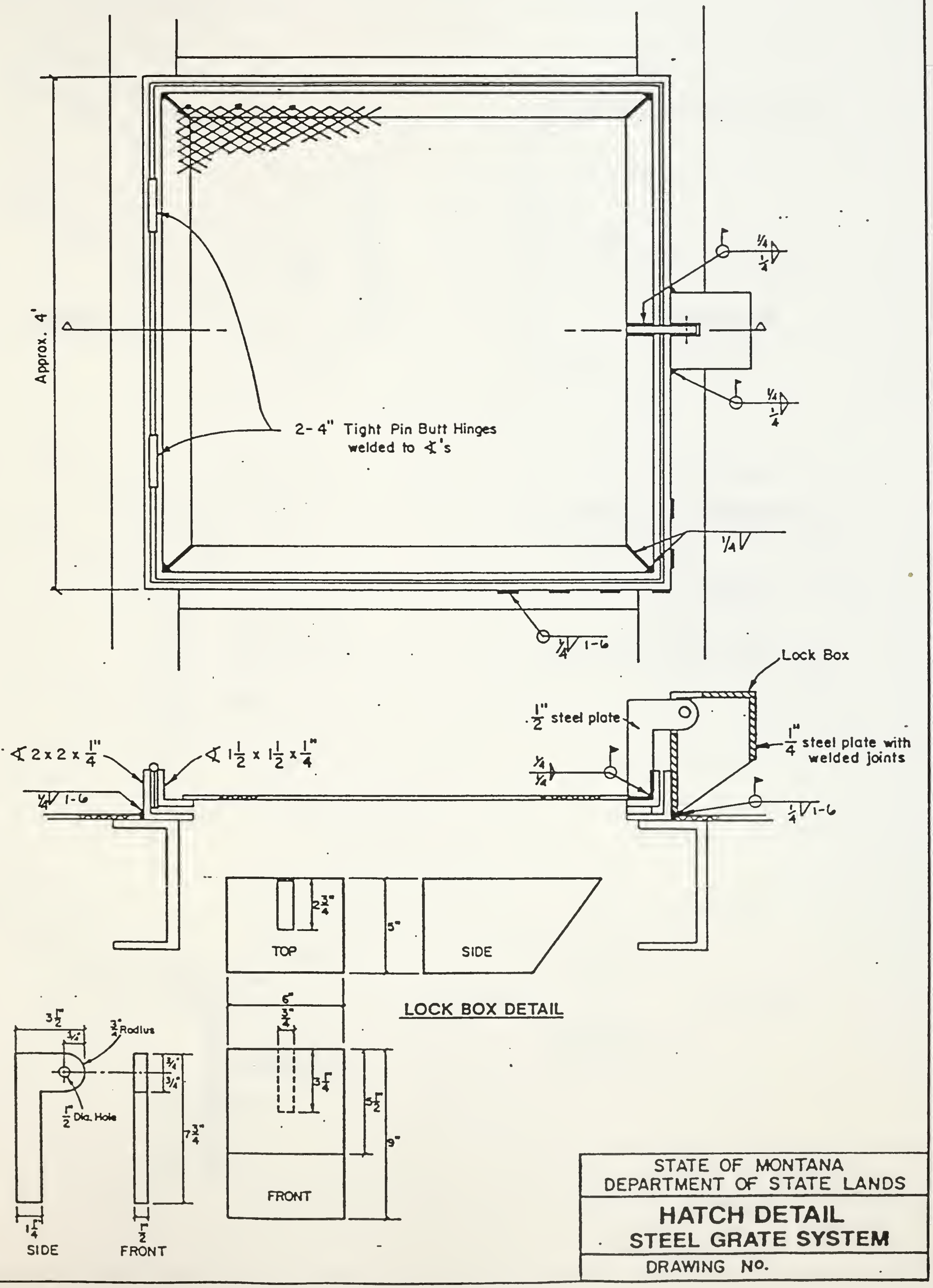
16 FEET
STEEL GRATE SYSTEM

DRAWING No.



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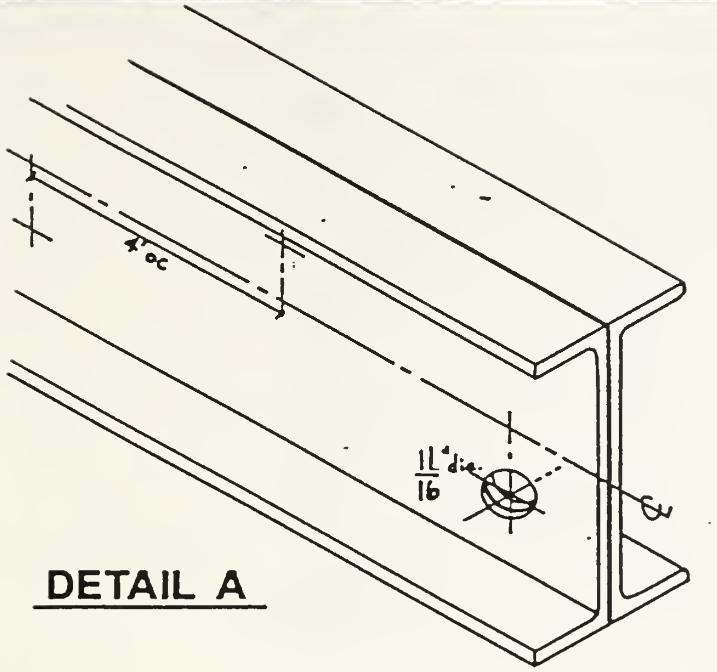
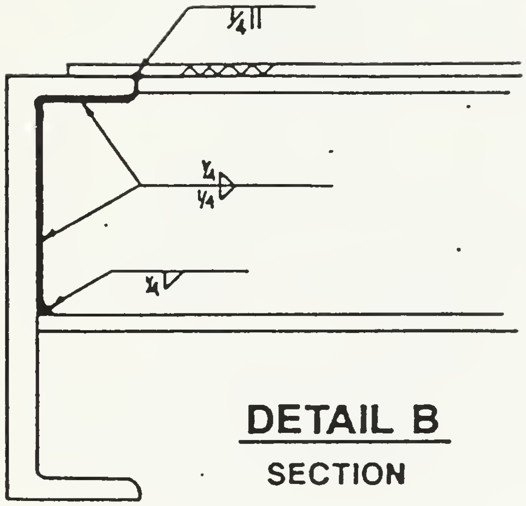
HATCH DETAIL
STEEL GRATE SYSTEM

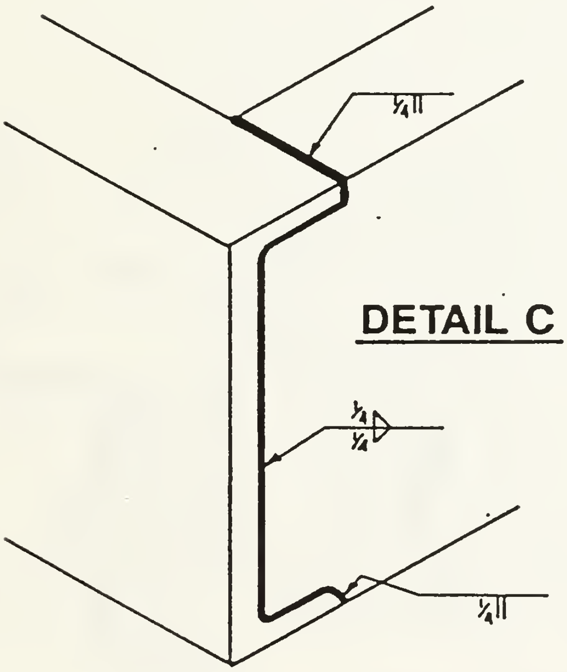
DRAWING No.



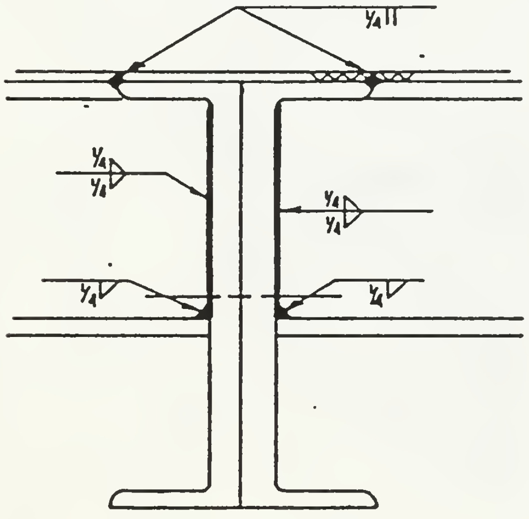
DETAIL A



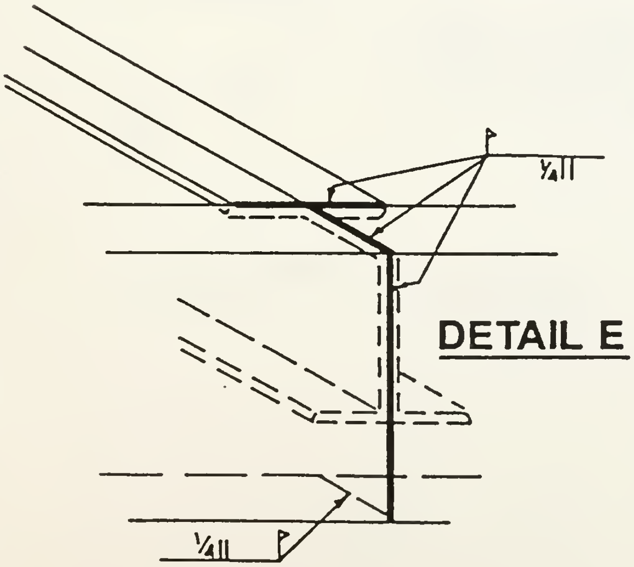
DETAIL B
SECTION



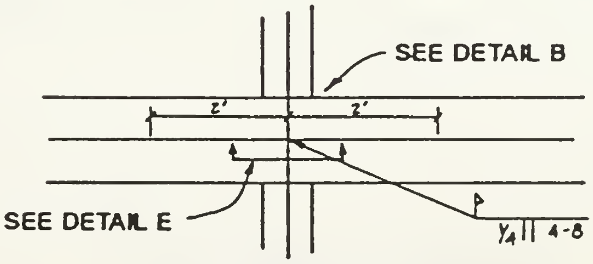
DETAIL C



DETAIL D
SECTION



DETAIL E



DETAIL F

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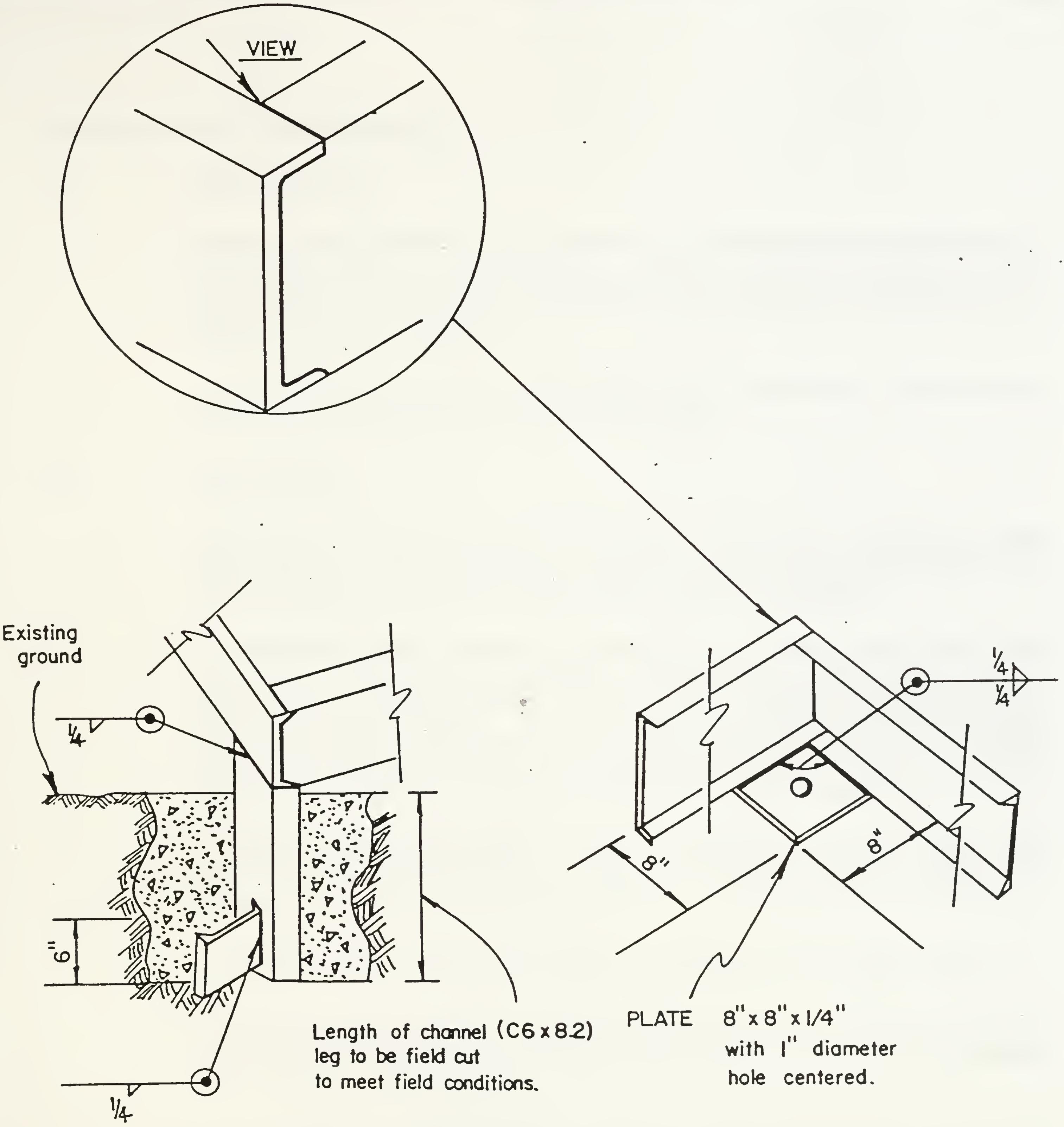
DETAILS
STEEL GRATE SYSTEM

DRAWING No.



Length of channel (C6 x 8.2) leg to be field cut to meet field conditions.

PLATE 8" x 8" x 1/4" with 1" diameter hole centered.

CONCRETE PEDESTAL

ROCK BOLT ANCHOR PEDESTAL

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PEDESTAL DETAILS
STEEL GRATE SYSTEM

DRAWING No.

SUBSECTION 5.4 FARM FENCE

5.41 DESCRIPTION

This work shall consist of the construction of barbed wire fence and gates in accordance with these Specifications and the Standard Drawings and in reasonably close conformity with the lines and grades shown on the Plans or established by the Engineer.

The type of fence covered by this specification is designated as "Farm Fence - Type F-5" as shown on the Standard Drawings.

5.42 MATERIALS

All materials used in the construction of fence shall be new materials meeting the following requirements and those shown on the Standard Drawings. Posts for new fences shall be as specified in the Special Provisions.

A. BARBED WIRE - Barbed wire shall be zinc-coated, steel barbed wire meeting the requirements of ASTM A 121. Breaking strength of strand wire shall be not less than 950 pounds. Barbs shall be uniformly spaced from four to five inches apart. Minimum weight of zinc coating shall be Class 1, except minimum weight of coating for 12 1/2 gauge strand wire shall be Class 3. Barbed wire shall be two-point barbed unless specified otherwise.

B. FENCE WIRE SLEEVES - Splices in barbed wire shall be made with sleeves as manufactured by Nicopress or approved equal, crimped as recommended by the manufacturer.

C. BRACE WIRE - Brace wire shall be 9 gauge, soft, and galvanized.

D. STAPLES AND NAILS - Wire staples of the barbed U-shaped type shall be not less than 9 gauge, 1-3/4 inches long. Nails shall be of the size approved by the Owner's representative.

E. TIE WIRE - Tie wires shall be not lighter than 12 1/2 gauge. Commercial fasteners supplied with the wire may be used when approved. All shall be galvanized.

F. METAL FENCE STAYS - Metal fence stays shall be of standard make. They shall be fabricated from 9 1/2 gauge wire base and twisted to form a two-wire unit.

G. METAL POSTS - Metal fence posts shall meet the requirements of ASTM A 702. The metal shall be a good commercial-quality steel with a

maximum carbon content of 0.82%. Posts and anchor plates shall be galvanized or painted. Galvanizing shall be in accordance with AASHTO M 111 (ASTM A 123). Painting shall be in accordance with good manufacturing practice.

Line posts shall be Tee, H, channel, or U-bar section and shall have corrugations, knobs, notches, holes, or stubs so placed and constructed as to engage a substantial number of fence line wires in proper position.
Posts shall have a nominal weight of 1.33 pounds per foot (exclusive of anchor plates). Length shall be 6'6".

Each line post shall be provided with a tapered steel anchor plate weighing not less than 0.67 pounds and securely fastened to the post in such a position that its top edge will be two to three inches below the ground surface when the post is set to prescribed depth.

H. WOOD POSTS AND BRACE RAILS - Wood posts and brace rails shall be made from Western Larch, Lodgepole Pine, Ponderosa Pine, or Douglas Fir. They shall have the bark removed, be well-seasoned, sound, and straight-grained.

Wood posts and brace rails for farm fence may be multi-sided. Regardless of number of sides, the minimum cross-sectional area shall be at least 13 square inches for line posts and brace rails and at least 29 square inches for terminal and panel posts. Wood line post lengths shall be 7'0", and wood panel post and brace rail lengths shall be 8'0".

A post with a bow of more than two inches in seven feet will be rejected.

Wood posts for farm fence shall be treated with a minimum five percent by weight pentachlorophenol solution or Chromated Copper Arsenate (CCA), Type B or C, or Ammoniacal Copper Arsenate (ACA) conforming to AWPA Standards. Treatment must be done in such a manner and with a carrying agent that the preservative will penetrate the wood at least one-half inch or full sap. Treatment shall extend to a minimum length of 36 inches for line posts and 48 inches for other posts. The treated end shall be placed in the ground. Brace rails shall not be treated. Post treatment must be performed at an approved plant.

Posts that are to be driven in the ground shall be tapered in about 8 to 12 inches to about a one-inch point on the lower end. The upper end shall be tapered for a minimum of four inches to a round top with a minimum diameter of three inches for line posts and five inches for terminal and panel posts. This taper is included in the specified post length. Tapering shall be done prior to treatment. No extra length at the top will be required, provided the Contractor can drive the posts without damaging the upper end, as may

be decided by the Owner's representative.

I. GATES FOR FARM FENCE - Gates for farm fences shall be of the material and construction shown on the Standard Drawings.

J. DEADMAN OR ANCHOR - A deadman shall weigh at least 150 pounds. It shall be a precast concrete block, cast-in-place concrete block, or other object satisfactory to the Owner's representative.

K. CONCRETE POST FOUNDATIONS - Concrete for post foundations shall be required as shown on the Plans and shall be class C-300 as specified by the Montana Department of Highways Standard Specifications.

L. MISCELLANEOUS - Nuts, bolts, fittings, and other hardware used in the construction of fences and gates shall be galvanized in accordance with ASTM A 153 or B 454 (Class 50).

5.43 CONSTRUCTION REQUIREMENTS

A. CLEARING AND LEVELING - When directed by the Engineer, irregularities in the ground line upon which the fence is to be constructed shall be corrected by use of a dozer or with other equipment that will perform a satisfactory job.

All trees, shrubs, brush, rock, and other obstacles that interfere with proper construction of the fence shall be removed by the Contractor and disposed of in a manner satisfactory to the Owner's representative.

In performing the operation of clearing and leveling, a minimum amount of terrain shall be disturbed.

B. POSTS AND BRACES - Post holes and excavations shall be excavated on the lines shown on the Plans or established by the Engineer to the depths and cross sections shown on the Standard Drawings.

Wood posts may be driven when so prepared. All damaged posts shall be satisfactorily repaired or rejected.

Posts that are cut or trimmed shall be treated with two coats of preservative. The preservative shall be a minimum five percent by weight pentachlorophenol solution or Chromated Copper Arsenate (CCA) Type B or C, or Ammoniacal Copper Arsenate (ACA) conforming to AWPA standards.

Brace rails shall be notched and securely nailed to wood posts. In no case will notching of the wood posts be allowed.

Metal posts that are not required to be set in concrete may be driven.

All posts shall be backfilled in six-inch lifts, and each lift solidly tamped and compacted.

All posts shall remain solidly in place after backfilling or driving has been completed.

C. ERECTING FENCE - After the posts and braces have been firmly set, the barbed wire shall be placed, tightly stretched, and fastened to the posts.

Tension shall be applied in accordance with the wire manufacturer's recommendations. Stretching by a motor vehicle will not be permitted. The power must be by or through a mechanical stretcher or device designed for such use.

Fence wire shall be wrapped around terminal posts and fastened to itself with at least four turns. Fence wire, in general, shall be placed on the side of the post opposite the work being undertaken. On curves, the wire shall be placed so the wire force is against the posts.

U-shaped staples shall be driven diagonally across the wood grain so that both points do not enter between the same grain. In depressions where wire uplift occurs, staples shall be sloped with points slightly upward.

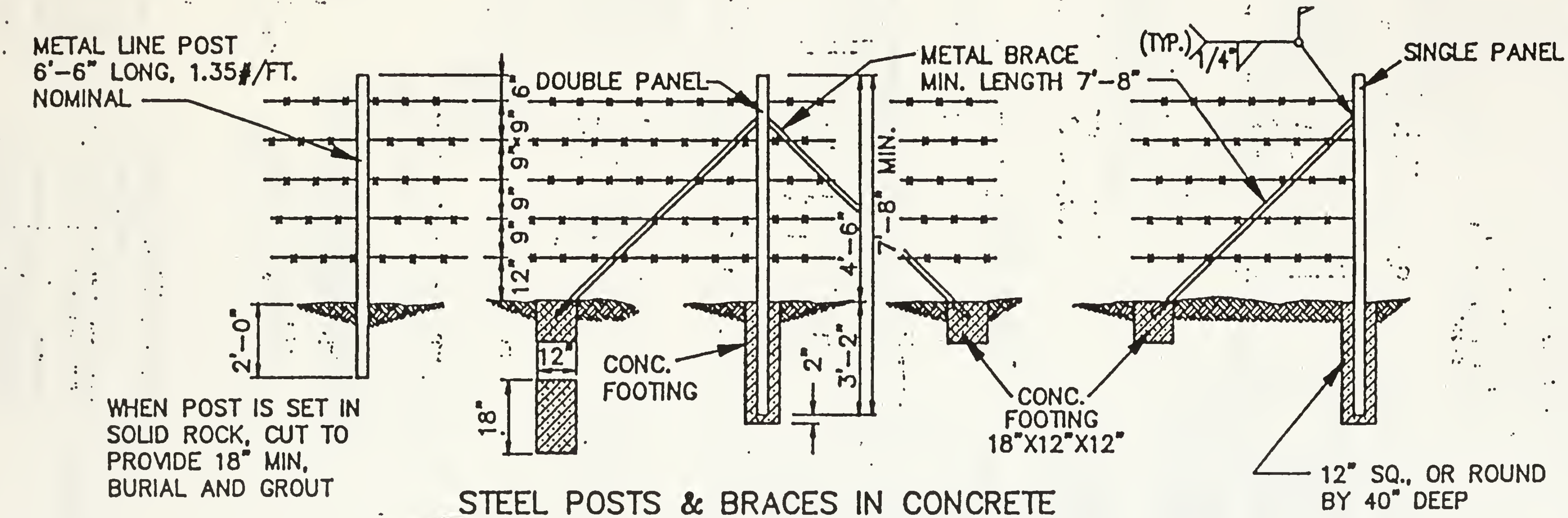
On level ground and over knolls, staples shall be sloped slightly downward. Wire shall be stapled tightly at corner and end posts. On line posts the staples shall not be driven so tightly as to prevent movement of the wire. In no case shall staples be driven so tightly as to damage the wire.

At grade depressions, alignment angles, and other places where stresses tending to pull posts from the ground or out of alignment are created, the wire fence shall be snubbed or guyed at the critical points by brace wire attached to each horizontal line of fence wire. The combined ends of the brace wires shall be firmly attached to a "deadman" buried not less than two feet in the ground or to an approved anchor at a point that will best serve to resist the pull of the wire fence. Deadmen also may be fastened to posts. The locations to use deadmen shall be as directed by the Engineer or in accordance with these Specifications.

Fence panels shall be set at the locations designated on the Plans or staked in the field. Wood terminal posts shall be used when panels are not required.

Gates shall be constructed in accordance with the Standard Drawings or as directed.

Upon completion, the fence shall be true to line and grade, all posts shall be vertical and firm, all wire shall be taut, and the completed fence shall be acceptable in all respects. Gates shall operate freely and properly. No openings shall be left that will permit stock or other animals to pass through the fence.



STEEL POSTS & BRACES IN CONCRETE

NOTES

- A DEADMAN MAY BE A CONCRETE BLOCK, A CAST-IN-PLACE CONCRETE BLOCK, A ROCK, OR OTHER APPROVED OBJECT WEIGHING AT LEAST 150 POUNDS AND COVERED AT LEAST 2 FEET.
- EACH CORNER END GATE, OR PULL POST AND EACH BRACE SHALL BE SET IN CONCRETE AND BRACED AS INDICATED.
- ALL CONCRETE SHALL BE CLASS "F", OR BETTER.
- STAPLE ALL WIRES TO WOOD LINE POSTS.
- TIE ALL WIRES TO STEEL LINE POSTS.
- STAPLE ALL WIRES TO WOOD CORNER POSTS, OR POSTS USED TO TIE-OFF ALL WIRE.
- METAL BRACES SHALL BE WELDED TO EACH CORNER, END GATE, OR PULL POST.

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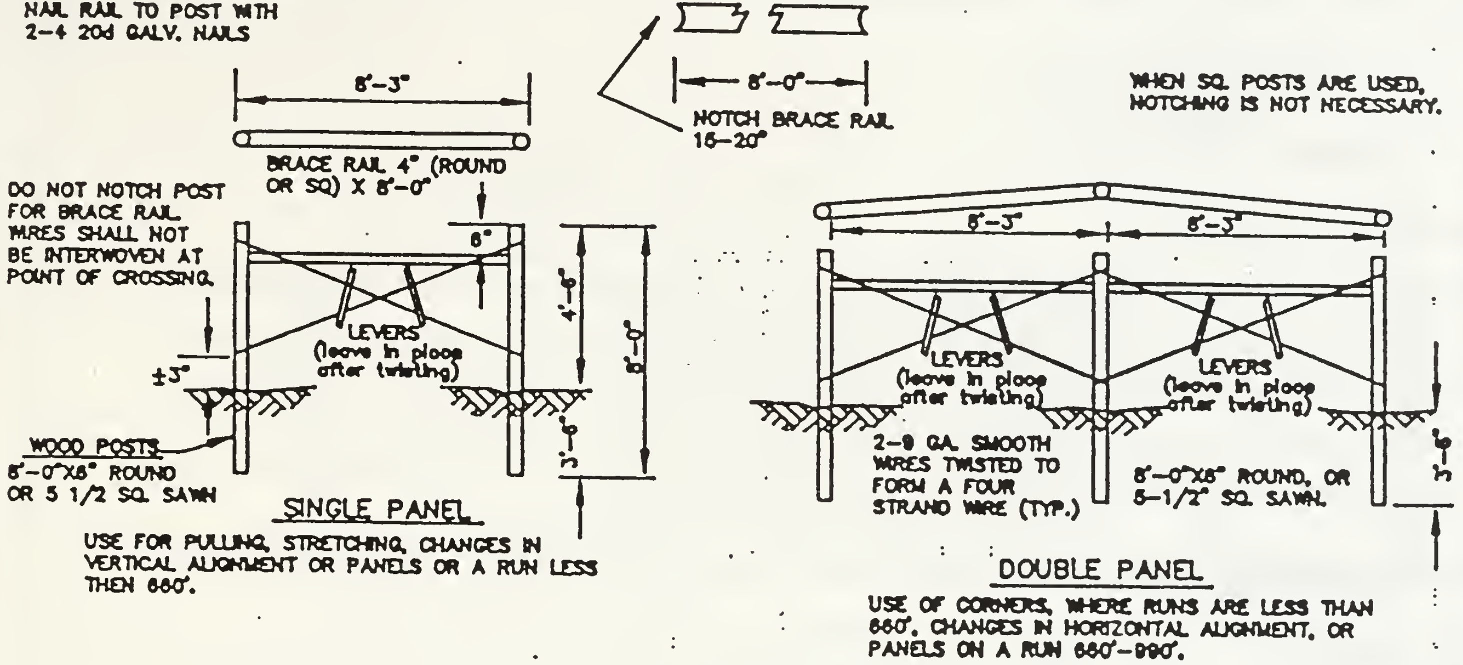
TYPE F-5 FARM FENCE
WITH POSTS IN CONCRETE

DRAWING No. 520.06



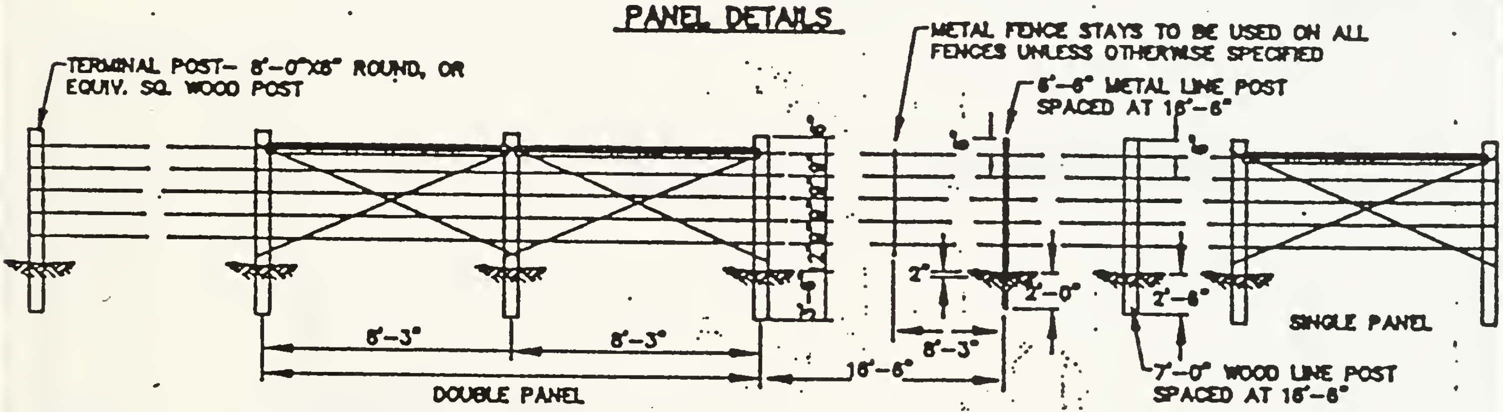
SINGLE PANEL

USE FOR PULLING, STRETCHING, CHANGES IN VERTICAL ALIGNMENT OR PANELS OR A RUN LESS THEN 660'.

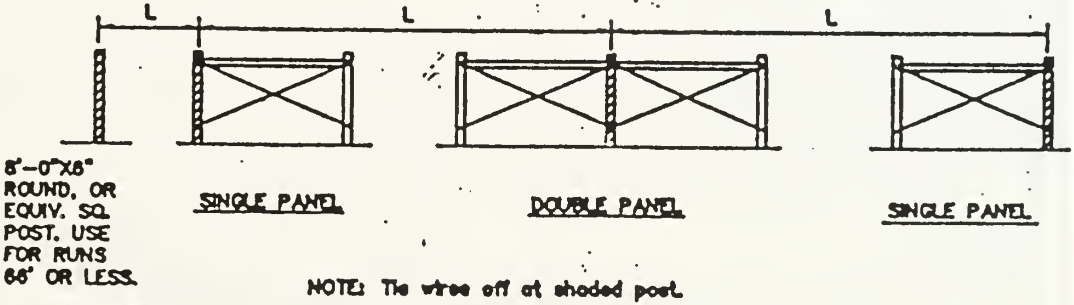
DOUBLE PANEL

USE OF CORNERS, WHERE RUNS ARE LESS THAN 660', CHANGES IN HORIZONTAL ALIGNMENT, OR PANELS ON A RUN 660'-990'.

PANEL DETAILS

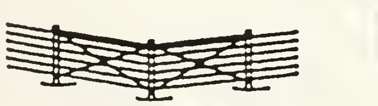


FENCE TYPE	L-RUN	PANELS REQUIRED
BARBED	66' or less	Terminal Post
	66' - 660'	Single
	660' - 990'	Double



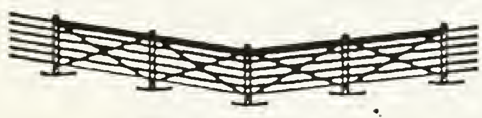
NOTE: Tie wires off at shaded post.

TERMINAL POST



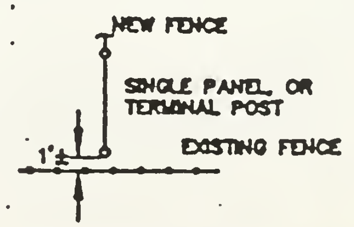
DOUBLE PANEL

Use where runs are less than 660 feet.



DOUBLE CORNER PANEL

Use where runs or 660 feet to 990 feet.



INTERSECTION OF NEW FENCE WITH EXISTING FENCE

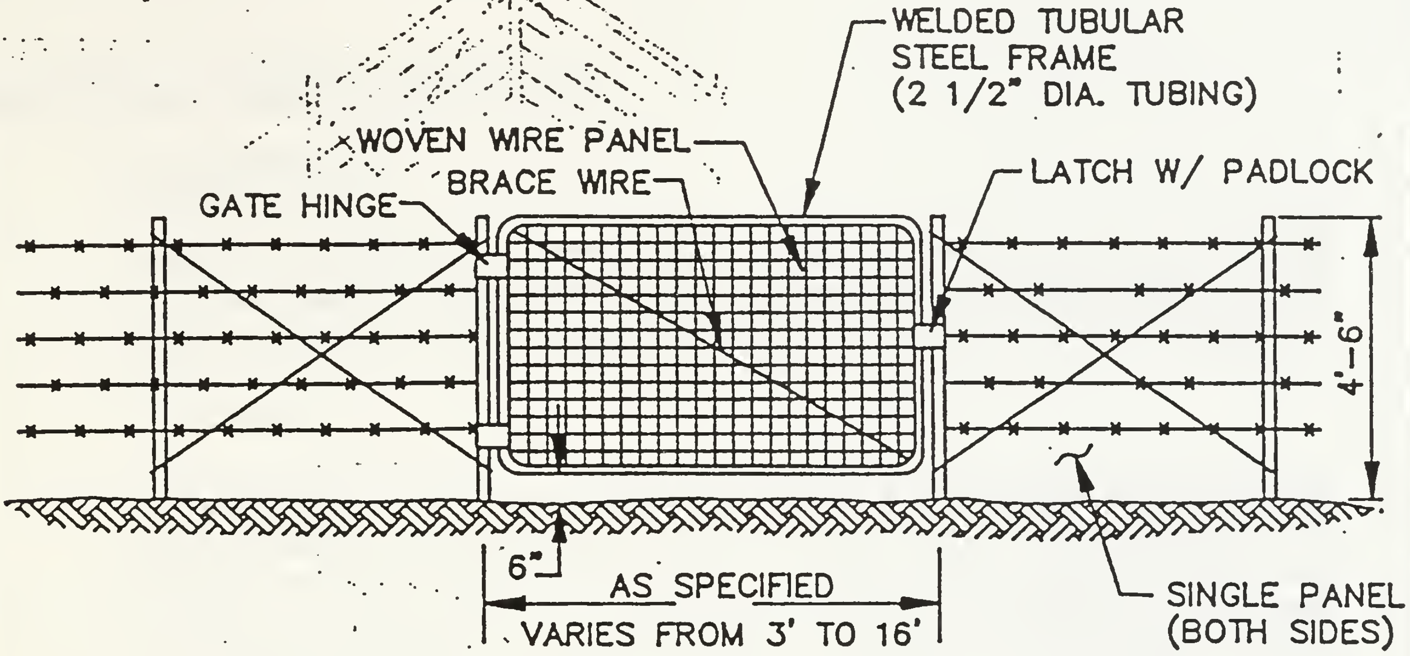
NOTES:

1. All fence wire to be placed on side of post opposite work area except curves, the wire shall be placed on the outside of the curve. In areas subject to high velocity winds and moving debris, wires may be placed on windward side of posts. Except on curves.
2. Post spacing measured generally parallel to ground.
3. Line post shall normally be spaced 16'-6" apart. Also 16'-6" from brace, or panel posts.
4. 35° wire stay to be placed halfway between posts, excepting panels.
5. A deadman may be a concrete block, a cast-in-place concrete block, a rock, or other approved object, weighing at least 150 pounds and covered at least 2 feet.

STATE OF MONTANA
DEPARTMENT OF STATE LANDS

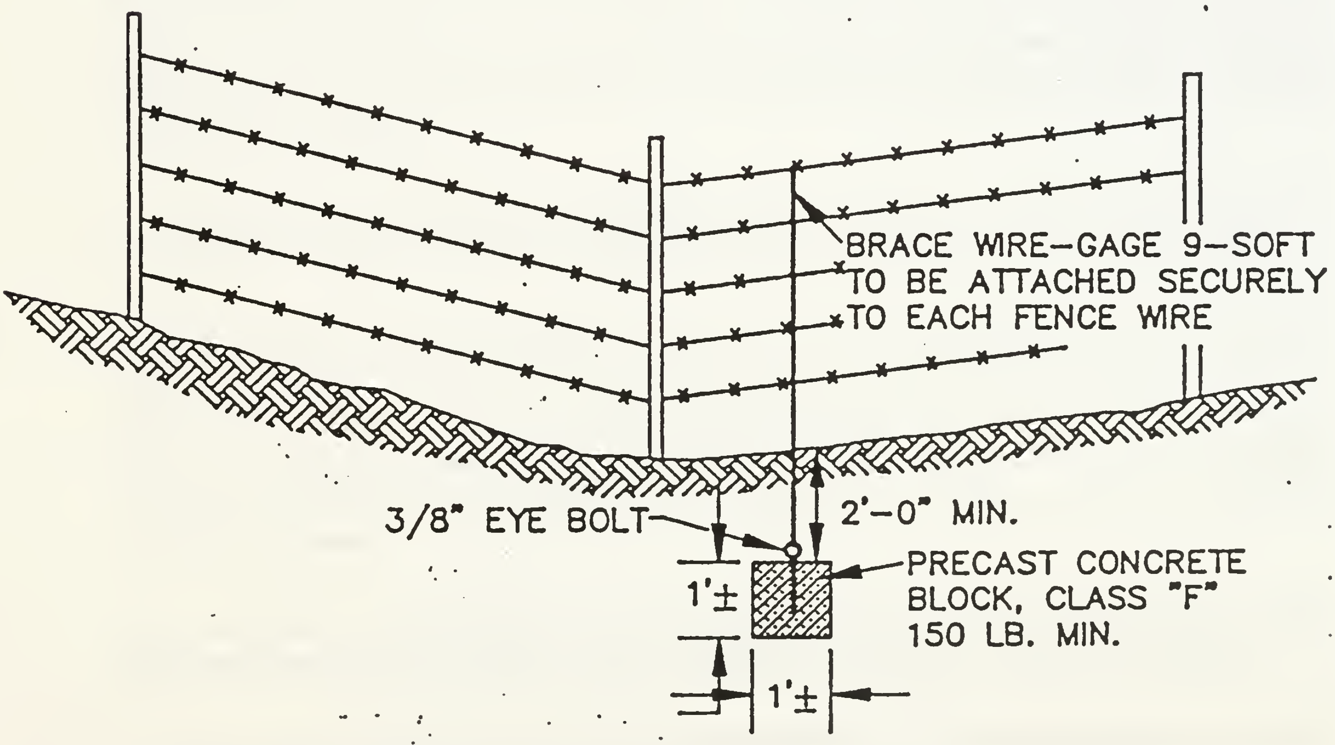
TYPE F-5
FARM FENCE

DRAWING No. 520.07



HINGED METAL GATE DETAIL

FOR TYPE F-5 FARM FENCE
NO SCALE



DEADMAN DETAIL

NO SCALE

STATE OF MONTANA
DEPARTMENT OF STATE LANDS

DEADMAN AND GATE
DETAIL

DRAWING No. 520.08

SUBSECTION 5.5 CHAIN LINK FENCE

5.51 DESCRIPTION

This item covers the requirements for furnishing materials and constructing new chain link fences in accordance with the details included herein and as shown on the Plans and Standard Drawings or established by the Engineer.

5.52 MATERIALS

A. GENERAL - The fence shall be the product of a manufacturer who has demonstrated by actual installations of a similar nature that its product is of the type required. The Contractor shall include all supplementary parts necessary or required for a complete and satisfactory installation within the true meaning and intent of the drawings. All runs of the fence shall present the same general appearance and the product of one manufacturer only will be accepted, except for items which do not influence the appearance of the completed fence. No used, rerolled or open-seam steel shall be permitted in posts, rails or braces.

B. FABRIC - The chain-link fence fabric shall be Class II - Galvanized Steel Wire and shall conform to the requirements of ASTM A392. Fabric shall be gauge 9 wire woven into approximately 2-inch diamond mesh. The width of fabric shall be 96-inches and shall be finished top and bottom with a "twisted and barbed" selvage.

C. FENCE POSTS, RAILS AND BRACES - Posts, rails and braces used in conjunction with galvanized steel fabric shall be acrylic-coated steel pipe.

Acrylic-coated steel pipe shall conform to the requirements of Federal Specifications RR-F-1911/3 for Class I Steel Pipe, Grade B, with zinc coating weight of not less than one ounce plus or minus one tenth (1.0 oz. plus or minus .10 oz) per square foot, for Grade B pipe, with an external chromate coating of 30 micrograms per square inch and an acrylic coating of 0.0005 inches or greater.

The dimensions of the posts, rails and braces shall be in accordance with Federal Specification RR-F-191/3, Tables I through VI, and as follows:

1. Line Posts. Acrylic-coated steel pipe shall be 2 7/8 inch outside diameter with a nominal weight of not less than 4.78 pounds per linear foot.

2. End, Corner and Pull Posts. Acrylic-coated steel pipe shall be 4.0 inch outside diameter with a nominal weight of not less than 9.1 pounds per lineal foot.

3. Top Rails. Acrylic-coated steel pipe shall be 1 5/8 inch outside diameter with a nominal weight of not less than 2.27 pounds per linear foot.

Top rails shall be in lengths not less than 18 feet and shall be fitted with expansion couplings for connecting lengths into a continuous run. The couplings shall not be less than 6 inches long, shall provide a substantial connection and shall allow for expansion and contraction of the rail. Suitable tie clips shall be provided in sufficient number for attaching the fabric securely to the top rail at intervals not exceeding 2 feet. Means shall be provided for attaching the top rail securely to each, corner, pull and end post.

D. POST BRACES AND TRUSS RODS - Post braces and truss rods shall be acrylic steel pipe conforming to the requirements of Subsection 5.52-C and dimensions of Fed. Spec. RR-F-191/3. Compressing Post Braces shall be of the same size and type as Top Rails.Tension truss rods shall be 3/8 inch round rods with drop forged turnbuckles, or other approved type of adjustment.

Post braces shall be provided for each corner, pull and end post, and shall consist of a compression brace extending to each adjacent line post at midheight of the fabric, and a tension rod from the line post back to the corner, pull or end post.

E. POST TOPS - Post tops shall be galvanized steel conforming to the requirements of ASTM 153. The post top shall be provided with a hole suitable for the through passage of the top rail. The post tops shall fit snugly on the posts, shall have suitable means for being attached securely and shall exclude moisture from tubular posts.

F. STRETCHER BARS AND CLIPS - Stretcher bars and clips shall be zinc-coated steel conforming to the requirements of Fed. Spec. RR-F-191/4. Stretcher bars shall be not less than 3/16 by 3/4 inch in cross-section or equivalent cross-sectional area and shall be of lengths equal to 2 inches less than the full height of the fabric with which they are to be used. The stretcher bars shall be arranged for attaching the fabric by threading through the fabric by clamps, or by other positive mechanical means. One stretcher bar shall be provided for each pull and end post, and 2 for each corner post.

Clips of adequate strength shall be provided in sufficient number for attaching the fabric and stretcher bars to all posts at intervals not exceeding 15 inches.

G. WIRE TIES AND TENSION WIRE - Wire ties and tension wire furnished for use in conjunction with a given type of fabric shall be of the same material identified with the fabric type. Wire fabric ties shall be galvanized steel wire or aluminum wire not less than 9 gauge. Galvanized steel

wire shall conform to requirements of Fed. Spec. RR-F-191/4.

H. MISCELLANEOUS FITTINGS AND HARDWARE - Miscellaneous fittings and hardware shall be of design standard with the manufacturer. Miscellaneous fittings and hardware furnished for use shall be galvanized steel applied in conformance with ASTM A153.

I. CONCRETE - Concrete shall be Class "AD" in accordance with the Montana Department of Highways Standard Specifications

J. MARKING - Each roll of fabric shall carry a tag showing the kind of base metal (steel), kind of coating, the gauge of the wire, the length of fencing in the roll and the name of the manufacturer. Posts, wire and other fittings shall be identified as to manufacturer, kind of base metal (steel) and kind of coating.

5.53 CONSTRUCTION REQUIREMENTS

A. GENERAL - The fence shall be constructed in accordance with the details on the Plans and as specified herein using new materials, and all work shall be performed in a workmanlike manner satisfactory to the Engineer. The Contractor shall span the opening below the fence with barbed wire fastened to stakes of the required length at locations of small natural or drainage ditches where it is not practical to conform the fences to the general contour of the ground surface, as required. The new fence shall be permanently tied to the terminals of existing fences whenever set adjacent existing chain link fencing. The finished fence shall be plumb, taut, true to line and ground contour, and complete in every detail. The Contractor shall be required to stake down the chain link fence at several points between posts.

B. CLEARING FENCE LINE - The site of the fence shall be sufficiently cleared of obstruction and surface irregularities shall be graded by blading or other means suitable to the Engineer so that the fence will conform to the general contour of the ground. The fence line shall be cleared to a minimum width of 2 feet on each side of the center line of the fence. This clearing shall consist of the removal of all stumps, brush, rocks, trees, or other obstructions which will interfere with proper construction of the same fence. Stumps within the cleared area of the fence line shall be grubbed or excavated. The bottom of the fence shall be placed a uniform distance above the ground, as specified on the Plans. When shown on the Plans, the existing fences which coincide with, or are in a position to interfere with, the new fence location shall be removed by the Contractor as a part of the construction work, unless such removal is listed as a separate item in the bid schedule. All holes remaining after post and stump removal shall be refilled with suitable soil, gravel or other material acceptable to the Engineer and shall be compacted properly with tampers.

The work shall include the handling and disposal of all material cleared, excavated, or removed, regardless of the type, character, composition or condition of such material encountered.

C. INSTALLING POSTS - All posts shall be spaced not more than 10 feet apart as shown on the Plans. All posts shall be installed carefully so that all posts shall be vertical and in true alignment and rigidly secured in position.

Where solid rock is encountered without an overburden of soil, line posts shall be set a minimum depth of 12 inches and end, corner, gate and pull posts a minimum of 18 inches into the solid rock. The hole shall have a minimum width 1 inch greater than the largest dimension of the post section to be set.

After the post is set and plumbed, the hole shall be filled with grout consisting of one part Portland cement. 3 parts clean, well-graded sand and the smallest amount of water necessary for proper mixing. The grout shall be thoroughly worked into the hole so as to leave no voids. The grout shall be crowned to carry water from the post.

When solid rock is covered by an overburden of soil or loose rock, the posts shall be set to the full depth shown in the Plans unless the penetration into solid rock reaches the minimum depth specified above, in which case, the depth of penetration may be terminated. Concrete footings shall be constructed from the solid rock to the top of the ground. Grouting will be required on the portion of the post in solid rock.

On terminal (end, corner, pull and brace) posts, the post tops and brace rail clamps around the posts shall be placed before setting the posts in concrete bases.

The concrete base for end, corner, pull and brace posts shall be placed first and allowed to cure for 7 days. Stretcher bar bands and truss bands as specified on the Plans shall be spread and slipped on end, corner, pull and brace posts as the next operation. Post tops are then inserted on all other posts. No extra compensation shall be made for rock excavation.

D. INSTALLING TOP RAILS - To start the installation a length of top rail shall run through the first couple of post tops; a rail clamp shall be assembled on the end or corner post, as the case may be. The end of the rail already placed shall be bolted into the clamp and fastened. The top rail shall be installed along the run of the fence and the various sections joined with sleeve couplings. At not more than every 100 feet, an expansion coupling shall be placed to allow for expansion and contraction of the rail. The rail shall be clamped in the end or corner post at the end of the run of the installation of top rail.

E. INSTALLING BRACES - All horizontal braces shall be attached together with truss rods at all terminal (end, corner, and pull) posts, to the brace post as shown on the Plans.

F. INSTALLING FABRIC - The fabric shall be unrolled on the outside of the fence line with the bottom edge of the fabric against the posts. The various rolls shall be spliced by bringing the ends close together and weaving in a picket in such a way that it will engage both of the roll ends and catch with each twist each separate mesh of the end pickets of both rolls of fabric. The fabric shall be raised and tied loosely to the top rail with a temporary tie wire at intervals of about 20 feet. The fabric shall be installed by the method given below (or approved equal).

1. At end or corner posts, the stretcher bar shall be slipped through the end picket of the fabric and the stretcher bar bands at the same time. Then the bolts in the stretcher bar bands shall be tightened. Additional rolls of fabric shall be spliced and placed as the erection progresses along the fence.

2. In long sections, the fence shall be stretched at intervals of about 100 feet. After the stretching is complete, the fabric shall be tied to the top rails with No. 9 gauge or larger galvanized wire clips securely clinched at the back of the rail. The fastenings shall be spaced not more than 24 inches on center for the top rail.

3. The fabric shall be attached to the line posts as specified in Subsection 5.52-G with No. 9 gauge or larger wire clips securely clinched to the back of the line posts. The fastenings shall be spaced not more than 15 inches on centers for line posts. The topmost clip shall be placed on the line post as near the top of the fabric as possible and the lowest clip as near the bottom of the fabric as possible.

4. At terminal end, corner and pull posts, the fabric shall be fastened with stretcher bars and bands. The fastenings shall be spaced not more than 15 inches on centers for terminal end, corner and pull posts. The topmost band shall be placed on these posts as near the top of the fabric as possible and the lowest band as near the bottom of the fabric as possible.

Standard chain-link fence stretching equipment shall be provided for stretching the fabric before tying it to the rails and posts. The stretching and tying operations shall be repeated about every 100 feet until the run of fence is completed.

Before making a closure, the other end of the run shall be fastened to the end corner post as described previously. The operation of making a closure of a run shall be as follows. The stretching shall continue until the slack has been

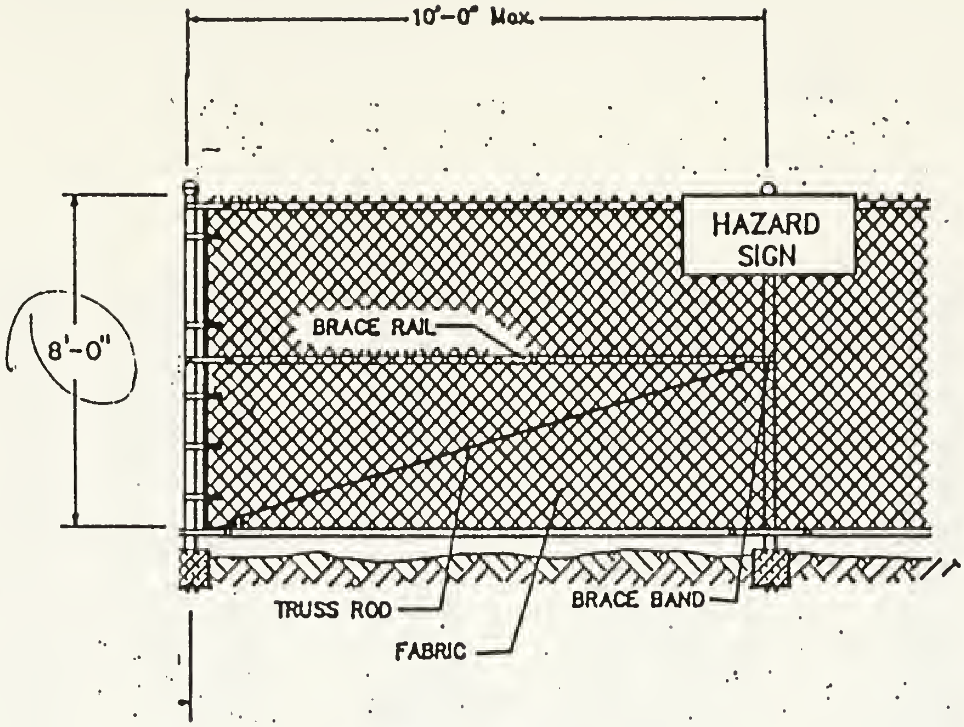
removed from both sections of the fabric. If the ends overlap, the fabric shall be cut to match. The ends shall be jointed by the insertion of a picket similar to the method of connecting 2 rolls of fabric.

G. INSTALLING TENSION WIRE - A tension wire shall be attached to the bottom of the chain-link fabric by means of ring fasteners at a maximum of 24 inch intervals and secured at the terminal posts or pull posts by means of brace bands.

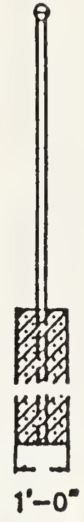
H. EXISTING FENCE CONNECTIONS - Wherever the new fence joins an existing fences, either at a corner or at the intersection if straight fence lines, a corner post with a brace post shall be set at the junction and braced the same as herein described for corner posts or as shown on the Plans.

If the connection is made at other than the corner of the new fence, the last span of the old fence shall contain a brace span.

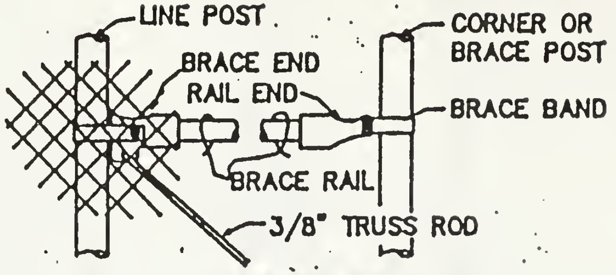
I. CLEAN UP - The Contractor shall remove from the vicinity of the completed work all tools, buildings, equipment, etc. used during construction.



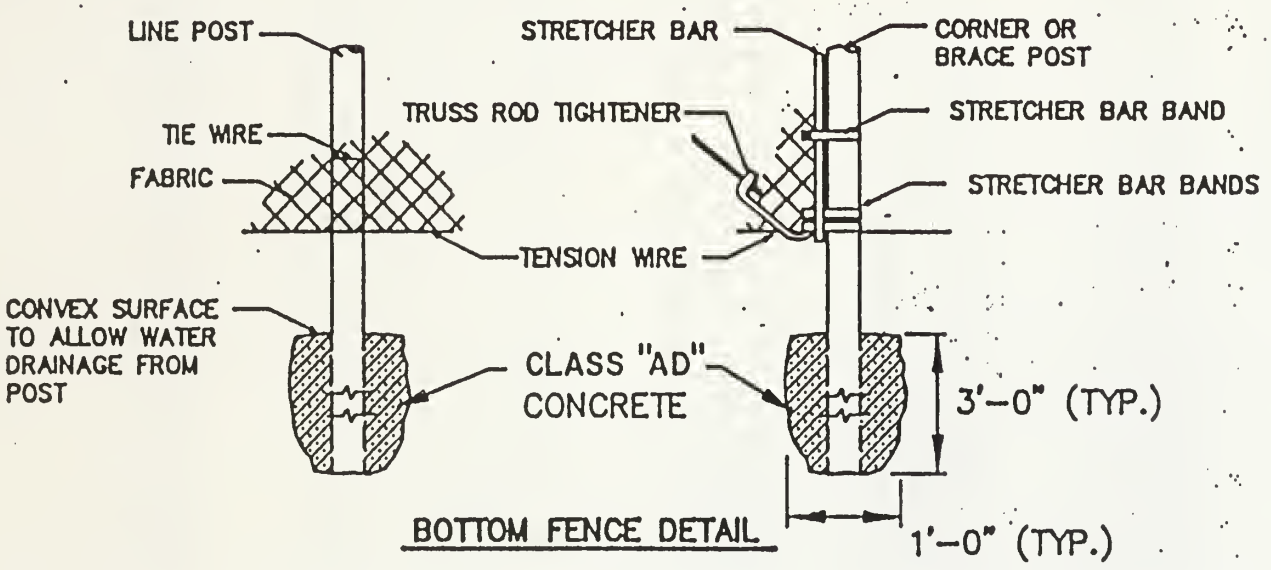
END PANEL



LINE POST



TOP FENCE DETAIL



BOTTOM FENCE DETAIL

STATE OF MONTANA
DEPARTMENT OF STATE LANDS

CHAIN LINK FENCE DETAIL

DRAWING No. 524.01

SUBSECTION 5.6 ATTACHING PERMANENT OWNER PROVIDED SIGNS

5.61 DESCRIPTION

This work shall consist of attaching Owner-provided signs to metal or wooden posts. See the Special Provisions for further information.

5.62 MATERIALS

A. SIGNS - The Contractor shall contact the Reclamation Division of the Department of State Lands or the Department's Representative and make arrangements for delivery of signs. Upon receiving signs, the Contractor shall take full responsibility for the safe handling, proper fastening, and protection of attached signs until final completion of the Contract.

When a wood post is specified, the Contractor shall furnish a new round wood post 8 inches in diameter with 6-inch gain or 6-inch square, sawed post 7-foot, 0-inches long meeting the following criteria:

1. Wood Posts and Blocks. Wood posts and blocks shall be Douglas Fir, Hemlock, Ponderosa Pine, Spruce, Larch, or Lodgepole Pine. Posts shall be straight, sound, and free from defects. Shapes and dimensions shall conform to the Standard Drawings.

Sawed posts prior to treating shall meet the requirements of construction grade posts and timber as set forth in the rules of the Western Wood Products Association or other equivalent grading rules, all of which shall meet the requirements of ASTM D 245.

The surface of the posts shall vary not more than 1 inch from a straight line connecting the ends. The posts shall be seasoned to the extent that the remaining moisture content will not interfere with the prescribed treatment. The end of the post to be placed in the ground shall be treated a minimum of 36 inches with a minimum 5% by weight pentachlorophenol solution or Chromated Copper Arsenate (CCA), Type B or C, or Ammoniacal Copper Arsenate (ACA). The preservative must penetrate the wood at least 1/2 inch or full sap.

The post may be gained full-length, but the minimum length shall be the top half of the pole. The top of the post shall be chamfered or otherwise shaped to prevent pooling of water.

2. Steel Posts. When a metal post is specified, the post shall be a 2 lb./ft. minimum steel "U" post, 8-feet, 0-inches long as follows:

a. General. The size and shape, including any holes or cuts, shall conform to applicable Standard Drawings and Special Provisions. When holes or cuts are made in steel posts in the field, the bared areas shall be given one coat of metal primer and two coats of aluminum paint. Galvanized posts shall be treated in accordance with ASTM A 123 (AASHTO M111).

b. Steel Posts.

1. Steel Structural. Steel structural posts having a nominal weight of more than 3 pounds per linear foot shall meet the requirements of ASTM A 36. These will be bid as "steel structural sign posts."

2. Steel U Sign. Steel posts formed into a "flying U" shape having a nominal weight of 3 pounds or less per foot shall meet the applicable requirements of AASHTO M-281 (ASTM A 702). These will be bid as "steel U sign posts."

5.63 CONSTRUCTION METHODS

A. WOOD POSTS - Wood posts may be either driven or emplaced in a hole augered or dug a minimum of 8 inches larger than the largest diameter of the post to be placed in it, to a depth of 2-feet, 6-inches. When the post is to be placed in an augered or dug hole, a 2-inch by 4-inch by 8-inch (2"x 4"x 8") board shall be attached 8 inches from the bottom of the post. Attachment shall be made by driving two nails (16d) through the 2x4 and into the post. The 2x4 shall be treated according to the Standard Specifications. The material excavated from the hole shall be moistened to achieve compaction and shall be backfilled in 6-inch lifts. Each lift shall be solidly tamped and compacted. The posts shall remain solidly in place after backfilling or driving is completed.

B. STEEL POSTS - Steel posts shall be emplaced in an augered or dug hole 11 inches or larger in diameter to a depth of 3-feet, 0-inches. The material excavated from the hole shall be moistened to achieve compacting and shall be backfilled in 6-inch lifts. Each lift shall be solidly tamped and compacted. The posts shall remain solidly in place after backfilling or driving is completed. When rocky ground is encountered, a rock drill shall be used to drill a hole 3 1/2 inches in diameter or larger, 3-feet, 0-inches in depth, filled with grout and the

steel post emplaced to the standard depth.

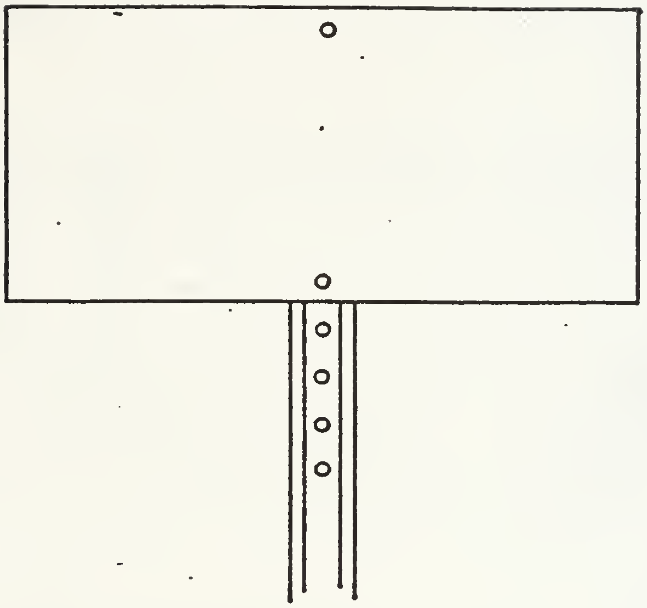
C. SIGN ATTACHMENT - The Contractor shall securely fasten signs to the wooden or steel posts at the locations shown on the Plans, staked in the field, or as directed by the Department's Representative. The required 3/8-inch head bolts, oversized plate washers, flat washers, lock washers, and hex nuts shall be furnished by the Contractor and shall meet the following specifications:

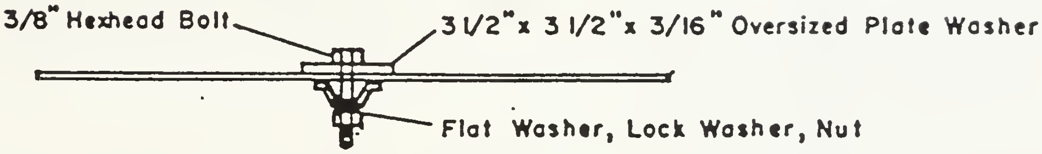
1. Hardware. Bolts, washers, nuts, lock washers, and incidental hardware and angles used for erecting aluminum sheet or steel signs shall be galvanized steel, galvanized in accordance with ASTM A 153 or A 163; or cadmium-plated steel plated in accordance with ASTM A 165. The means of attachment shall be as shown on the Standard Drawings.

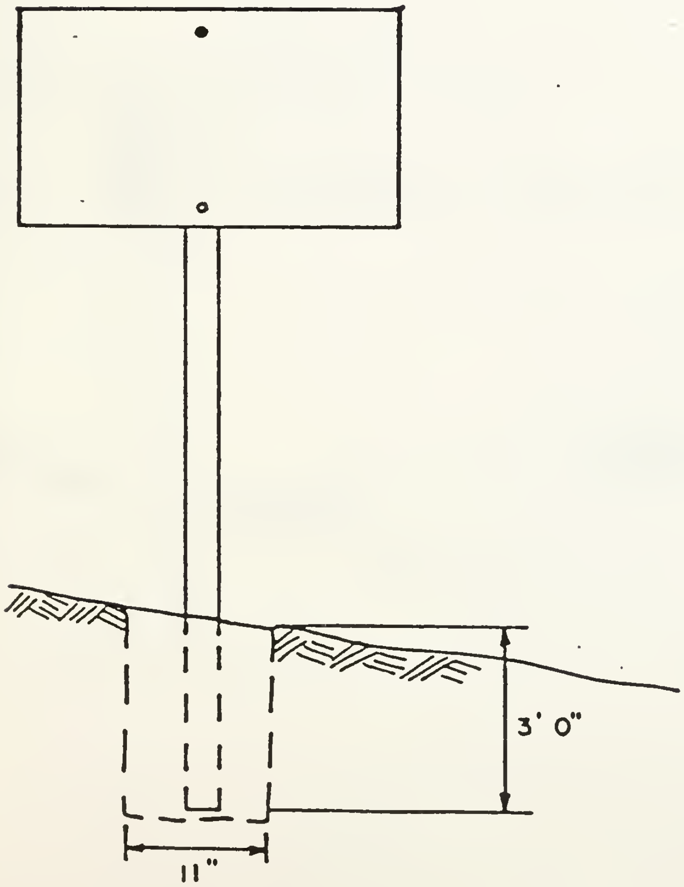
The mounting bolts for all ground-mounted sign faces shall have the threads jammed in order to discourage sign theft. The thread jamming shall be accomplished after each sign installation is completed and any adjustments in the position of the sign have been made.

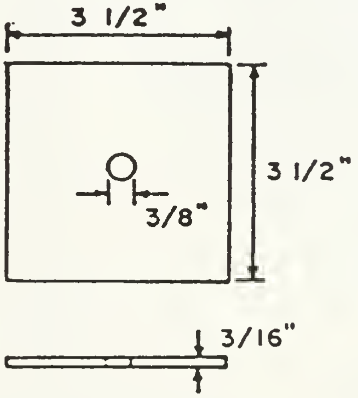
Other means of damage to bolt ends to prevent sign theft may be permitted at the discretion of the Engineer.

An acceptable oversize plate washer may be fabricated from 3 1/2-inch wide by 3/16 inch thick mild steel flat bar cut 3 1/2 inches long drilled with a 3/8 inch hole through the center and painted with one coat of primer and two coats of aluminum paint.




3/8" Hexhead Bolt
3 1/2" x 3 1/2" x 3/16" Oversized Plate Washer
Flat Washer, Lock Washer, Nut





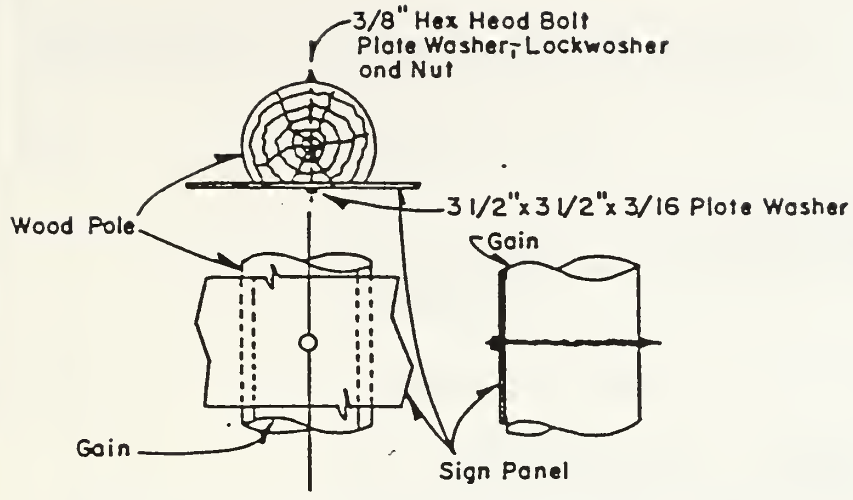
OVERSIZE PLATE WASHER

STATE OF MONTANA
DEPARTMENT OF STATE LANDS

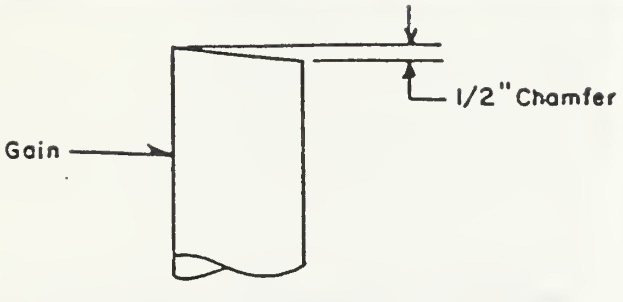
STEEL POST
SIGNING

STANDARD DRAWING NO.

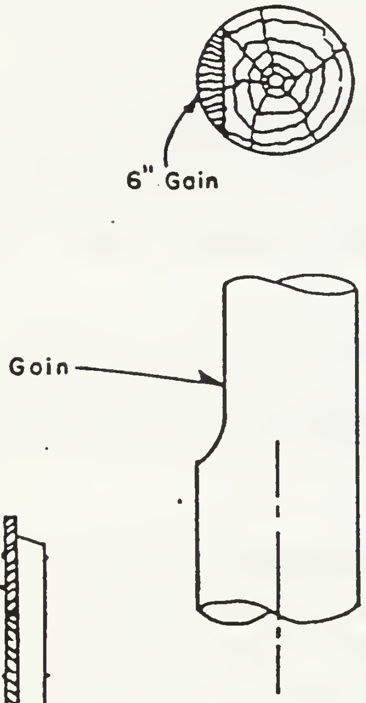
REVISED 5/88



TREATED WOOD POLE WITHOUT BACK BRACING

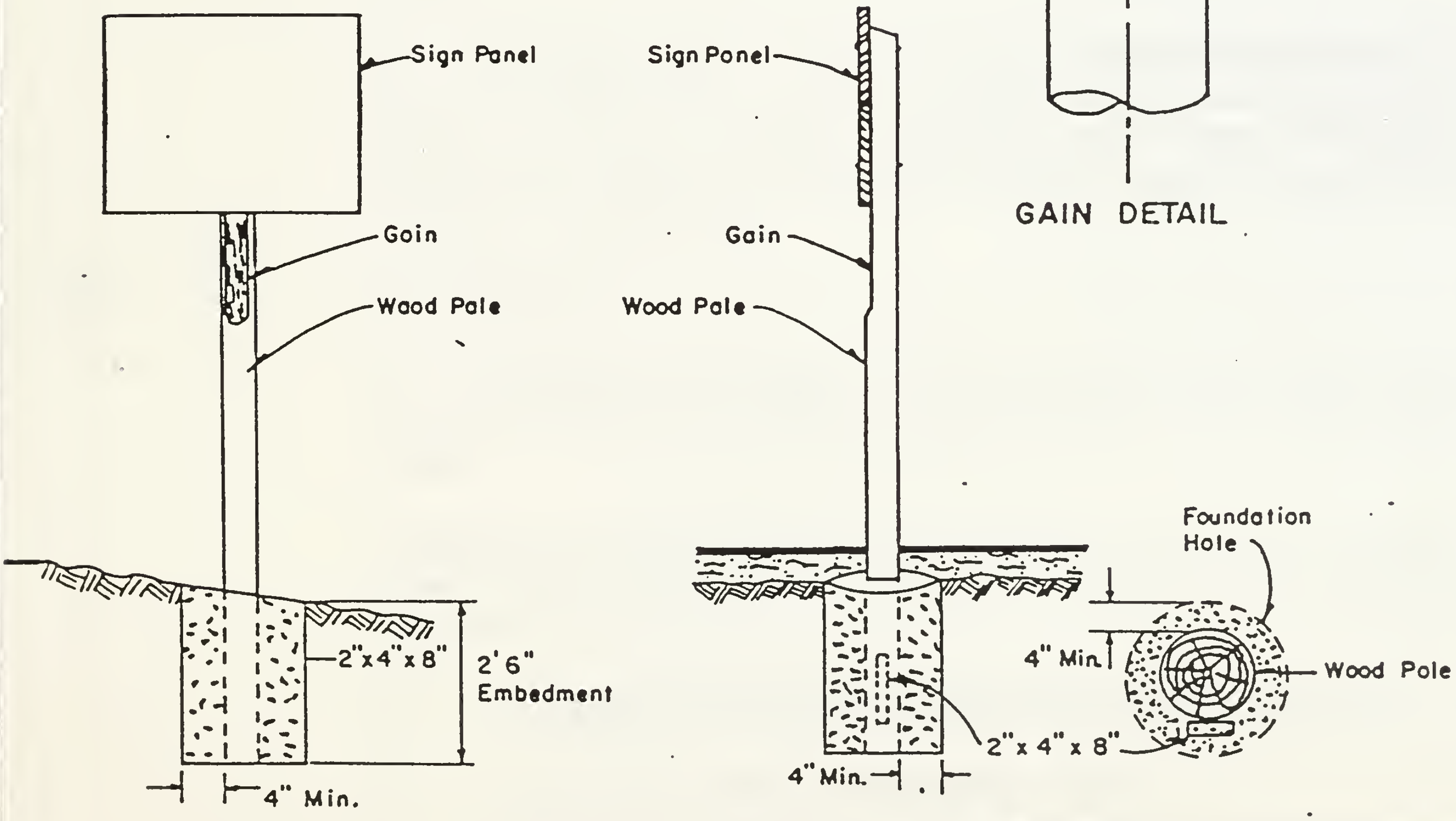


TOP END TREATMENT



GAIN DETAIL

A 2"x4"x8" board shall be attached 8" from the bottom of the Pole. Attachment shall be made by driving two nails (16d) through the 2"x4" and into the Pole. The 2"x4" shall be treated according to the Standard Specifications.



STATE OF MONTANA
DEPARTMENT OF STATE LANDS

WOODEN POST
SIGNING

STANDARD DRAWING NO.

REVISED 5/88

SUBSECTION 5.7 SEED AND FERTILIZER

5.71 DESCRIPTION

This work shall consist of tracking, furnishing and applying fertilizer and planting seed, and any cleanup required as a result of these operations.

5.72 CERTIFICATIONS

A. INDIGENOUS SEED - Defined by MCA 80-5-101(4): "Indigenous seeds include the seeds of those plants that are naturally adapted to an area where the intended use is for revegetation of disturbed sites. These species include grasses, forbs, shrubs and legumes."

The Contractor must supply the Engineer with all seed bag tags and a certification from the supplier stating that the seed complies with the Federal Seed Act and the Montana Seed Laws (MCA 80-5-101 through 305).

B. FERTILIZER - Fertilizer shall be delivered in standard size bags of the manufacturer showing weight analysis and manufacturer's name, or in bulk quantities accompanied with written certifications from the manufacturer stating that the fertilizer supplied complies with applicable specifications.

5.73 MATERIALS

A. INDIGENOUS SEED - All seed shall comply with and be labeled in accordance with the Montana Seed Law. MCA 80-5-104(2) states,

"Indigenous seeds, as defined in 80-5-101, in amounts of 1 pound or more, whether in package or bulk, must be labeled with the following information:

(a) the statement labeled "Only For Reclamation Purposes";

(b) lot number or other distinguishing mark;

(c) the common name, genus, species and subspecies, when applicable, including the name of each kind of seed present in excess of 5%. When two or more kinds of seed are named on the label, the label shall specify the percentage of each. When only one kind of seed

is present in excess of 5% and no variety name or type designation is shown, the percentage must apply to seed of the kind named. If the name of the variety is given, the name may be associated with the name of the kind. The percentage in this case may be shown as "pure seed" and must apply only to seed of the variety named;

(d) state or county of origin, if known. If the origin is unknown, that fact shall be stated;

(e) the approximate percentage of viable seed, together with the date of test. When labeling mixtures, the percentage viability of each kind shall be stated;

(f) the approximate percentage by weight of pure seed, meaning the freedom of seed from inert matter and from other seeds;

(g) the approximate percentage by weight of sand, dirt, broken seeds, sticks, chaff and other inert matter;

(h) the approximate total percentage by weight of other seeds;

(i) the name and approximate number of each kind of species of restricted noxious weed seeds occurring per pound of seed;

(j) the full name and address of the person, firm or corporation selling the seed.

As listed in the Montana Seed Law, seed shall contain no "PROHIBITED" noxious weed seed. The seed shall contain no "RESTRICTED" noxious weed seed in excess of the maximum numbers per pound as specified by MCA 80-5-105 or as specified by the appropriate County Weed Board, whichever is more stringent.

The number of seed allowed per pound, for all other noxious weed seeds shown on the "restricted list" will be zero.

Seed shall be grown in the North American continent above 41 degrees north latitude. All seed shall be a standard grade adapted to Montana conditions. Seed which has become wet, moldy or otherwise damaged will not be accepted.

Calculations of pure "live seed" may be made on the basis of either a germination test or a tetrazolium test in addition to the purity analysis. Seed shall be applied on a pure "live seed" basis. The quantity of pure "live seed" in a 100 lb. container shall be determined by the

formula: 100 multiplied by germination percentage and this product multiplied by the purity percentage. (For example, if the seed is 85% pure and test 90% germination, then a 100 lb. container would contain 76.5 lbs. of pure "live seed".)

B. FERTILIZER - Fertilizer shall be a soluble commercial carrier of available plant food element or combination thereof. The fertilizer to be used on the project shall supply the quantities of available chemical elements, stated in writing by the Engineer. The fertilizer shall be in uniform composition and in good condition for application by suitable equipment. It shall be labeled with the manufacturer's guaranteed analysis as governed by applicable fertilizer laws. Any fertilizer which becomes contaminated or damaged, making it unsuitable for use, will not be accepted.

C. WATER - Water used for seeding shall be of irrigation quality and free of impurities that would be detrimental to plant growth.

5.74 CONSTRUCTION METHODS

A. GENERAL - Areas to be seeded and fertilized shall be completed, in reasonable conformity, to specified line and grade, tracked, and approved by the Engineer prior to seeding and fertilizer.

It is necessary, insofar as it is practicable and feasible, as determined by the Engineer, that the seedbed surface, at the time of application of seeds, be reasonably free of large lumps, clods, and impervious crusts of dirt; that there be no appreciable areas of loose soils which can feasibly be compacted; that the surface, to a depth of approximately two (2) inches, not be so tightly compacted that seed cannot begin growth. The Contractor shall treat such areas, as directed by the Engineer, to attain, as nearly as practicable, the condition described.

Existing structures and facilities shall be adequately protected and any damage done by the Contractor shall be repaired or adjusted to the satisfaction of the Engineer.

B. TRACKING - All areas requiring seeding and fertilizing may or may not require tracking, as noted in the Special Provisions. Tracking shall be accomplished using a tracked vehicle equipped with grousers sufficient to groove the surface to at least 1/2 inch. The tracking vehicle shall be operated so as to completely cover the surface with grouser marks. All grousers marks shall run perpendicular to the natural slopes. The tracking vehicle shall be operated alternately between forward and reverse on each pass to

eliminate damage to the seedbed resulting from 180 degree skid turns.

If the area is seeded by hydraulic methods, tracking of the slopes shall be done at such time when the surface has had sufficient time to dry. The length of time established will be at the discretion of the Department's Representative.

C. APPLICATION OF FERTILIZER - Fertilizer shall be applied to the accepted seedbed surface at the rate as specified in writing by the Engineer. Mechanical or hydraulic methods of application are acceptable so long as a uniform application at the specified rate is accomplished. The application method is subject to approval by the Engineer. The application methods and methods for incorporating the fertilizer into the seedbed shall be as specified herein.

D. SEED DISTRIBUTION -

1. General. Seed shall be applied to the conditioned seedbed no longer than 48 hours after the seedbed has been conditioned. The method of seeding will be specified in the Special Provisions.

The seeding of inslopes, narrow medians, or small areas which are impractical to seed by drill may be performed by using the broadcast seeding method if approved by the Department's Representative.

The hydraulic seeding methods shall not be used when the seedbed surface is too wet or swampy to permit seeding by drill.

Broadcast or Hydraulic Seeding methods shall not be used during adverse weather, as determined by the Department's Representative.

The applied seed, regardless of the method of application, shall not be covered by a soil thickness greater than one-half (1/2) inch in depth.

The basic rate of seed application will be described in the Special Provisions.

2. Seeding by Drill. Seeding equipment used for applying grass seed must be designed, modified or equipped to regulate the application rate and planting depth of grass seed. If equipment for sowing cover crop seed is not equipped with press wheels, the seed shall be compacted with a cultipacker immediately after the ground has been drilled. Seed must be uniformly distributed in the drill hopper during the drilling operation. Acceptable drills are custom seeders, furrow drills, disc drills or other drills approved by the Engineer. All grass establishment equipment shall be operated normal to the slope

drainage.

Planting depth shall be regulated by depth bands or coulters. The drill box shall be partitioned by dividers no more than 24 inches apart, in order to provide for more even distribution on sloping areas. A drill shall be no wider than the width of the area over which it is to operate.

The rows of planted seed shall be a maximum of 8 inches apart and shall be at right angles to the natural slopes.

3. Broadcast Seeding. Seeding by hand or mechanical broadcasting will be permitted on areas inaccessible to drills or impractical to seed by other prescribed methods. Broadcast seeding requires the approval of the Department's Representative.

4. Hydraulic Seeding. Hydraulic seeding equipment may be used. Generally, seed and mulch will be applied in separate and distinct operations except for the following:

When using the hydraulic seeding method, the Contractor must provide 1 pound of wood fiber or organic mulch per each 3 gallons of water in the hydraulic seeder as a cushion against seed damage. The mulch used as a cushion may be part of the total required mulch with the remainder applied after the seed is in place.

The Contractor may be required to use extension hoses to reach the extremities of slopes.

The Contractor shall remove any equipment tracks on the seedbed prior to final mulching. The Contractor shall use a rake, small harrow or other acceptable means to remove the tracks.

SUBSECTION 5.8 MULCH

5.81 DESCRIPTION

This work shall consist of covering and processing specified seeded areas with a mulch of the stipulated materials.

5.82 MATERIALS

A. GENERAL - Mulching materials used on the project shall be those stipulated in the Special Provisions or stipulated as items in the Contract and described hereafter.

B. VEGETATIVE MULCH

1. Grass Hay. This type of mulch material shall be composed primarily of perennial grasses at least 10 inches long. The grass hay mulch shall contain greater than 70% grass by weight and shall not contain greater than 10% alfalfa, crested wheatgrass or yellow sweet clover. Grass hay shall be free of noxious weeds and will require written confirmation from the supplier, describing the hay mix.
2. Straw. This type of mulch material shall be clean grain straw, at least 10 inches long, shall be free of noxious weeds and shall not contain greater than 5% cereal seed by weight, i.e., seed heads. Written confirmation from the supplier will be required.

Chopped or ground material is not acceptable. The mulch material is not acceptable if it is musty, moldy or rotted, or if it contains seed-bearing stalks of noxious weeds. It shall be free of stones, dirt, roots, stumps or other foreign material.

C. BITUMINOUS MULCH - This type of mulch shall be SS-1 Emulsified Asphalt. Its chemical composition must be such that it will be non-toxic to plant life. Application temperature shall not be less than 50oF.

D. FABRICATED MULCH - Fabricated mulch acceptable to the Owner shall be made of jute, burlap or kraft paper string. It shall be a material made and commonly used for the purpose of preventing erosion of soil surfaces.

E. FABRICATED NETTING - Fabricated netting shall be made up of jute, burlap, kraft paper string or similar products. It may be made up on the project or prefabricated. The material must be approved prior to use, and

if required, samples submitted. It shall be installed as directed by the Owner.

F. WOOD FIBER MULCH - Wood fiber mulch shall consist of specially prepared wood fibers and shall be processed in such a manner that it will not contain any growth or germination inhibiting factors. Fiber shall not be produced from recycled material such as sawdust, paper, cardboard, or residue from pulp and paper plants. The fiber shall be dyed an appropriate color to facilitate visual metering during application. The mulch shall be of such a consistency that after being combined in a slurry tank with water and other approved additives, the fibers in the material will be uniformly suspended to form a homogeneous slurry. During application the material shall produce a mat-like net covering the grass seed. Wood fiber shall be supplied in packages. Each package shall be marked by the manufacturer to show the air-dry weight content. All mulch material must be acceptable to the Owner. If requested by the Owner, the Contractor shall submit a signed statement certifying that the material furnished has been laboratory and field tested and that it meets requirements and intents specified.

G. ORGANIC MULCH - Organic mulch shall be a neutral Ph organic produce formulated from grass/straw by-products, and shall be processed specifically for mulching purposes. Processing shall be in such a manner that the organic mulch not contain stalks or seeds of noxious weeds or grasses, or any growth or germination inhibiting factors. To facilitate visual metering during application, a non-toxic water soluble green colored dye shall be added to the water. The mulch shall be of such a consistency that after being combined in a slurry tank with water, dye and other approved additives, the mulch material will be uniformly suspended to form a homogeneous slurry. Upon application the material shall produce a mat-like net covering the grass seed. Organic mulch shall be supplied in packages. Each package shall be marked by the manufacturer to show the air-dry weight content. All mulch material must be acceptable to the Owner. If requested by the Owner, the Contractor shall submit a signed statement certifying that the material furnished has been laboratory and field tested and that it meets requirements and intents specified.

H. PAPER MULCH - Paper mulch shall be composed of waste paper selected and processed in such a manner that it contains no growth inhibiting factors. After recycling, the processed products shall be 100% free of any paper clips or other metal objects, plastic bits and pieces, or other foreign matter classified as non-biodegradable. The mulch shall be of such a consistency that after being combined in a slurry tank with water, fertilizer, and other approved additives, the paper mulch will remain in uniform suspension under agitation. When applied by hydraulic means to ground surfaces, the paper mulch must form a strong moisture-holding mat capable of holding seed in contact with the soil without smothering the

seed. The paper mulch may be dyed an appropriate color to facilitate placement or a non-toxic dye may be added to the water. Paper mulch shall be applied at the rates shown on the Plans or as stated in the Special Provisions. Paper mulch shall be supplied in packages. Each package shall be marked by the manufacturer to show the air-dry weight content. The percentage of moisture shall not exceed 15%.

I. TACKIFIER - Tackifier shall be a biodegradable organic formulation processed specifically for the adhesive binding of mulch. The tackifier shall uniformly disperse when mixed with water and not be detrimental to the homogeneous properties of the mulch slurry. Any tackifier which has been moisture damaged or damaged by other means will not be acceptable. Tackifier may be added either during the manufacturing of the mulch or incorporated during mulch application.

Organic soil and mulch tackifier for use in hydraulically planting of grass seeds, flowers, or woody tree seeds, or stolon, either alone or in combination with fertilizer, wood fiber mulch and other approved additives, shall consist of specifically blended compatible hydrocolloids.

The soil and mulch tackifier shall be supplied in easily disposable packages containing 5, 20, or 40 pounds of material having an equilibrium air-dry moisture content at time of manufacture of 8%, plus or minus 2%, with a minimum water-holding capacity of 6 1/2 times by weight of dry material.

The organic soil and mulch tackifier shall have the additional characteristics of hydrating and dispersing in circulating water to form a homogeneous slurry and remain in such a state in the hydraulic mulching unit, or adequate equal, with the specified, or other approved materials.

Soil and mulch tackifier shall be applied at a minimum rate of 40 pounds per acre on slopes 2:1 or flatter, or at 80 pounds per acre, or more on slopes steeper than 2:1, or as manufacturer's recommendations, approved by the Department.

When applied, the organic soil and mulch tackifier shall form a loose chain-like protective film, but not a plant inhibiting membrane, which will allow moisture to percolate into the underlying soil, while helping "stick" seeds, fertilizer and other specified materials to the soil surface during germination and initial seedling growth, after which the organic soil and mulch tackifier shall breakdown by microbial action.

5.83 CONSTRUCTION REQUIREMENTS

A. GENERAL - Mulch, when required, must be applied to seeded areas not more than 24 hours after seeding regardless of the type used. If for any reason, other than adverse weather conditions, the Contractor does not mulch within 24 hours after seeding, the Contractor may be required to re-seed the project as directed by the Owner at no additional cost to the Owner. Mulch shall not be applied in the presence of free surface water, but may be applied upon damp ground.

Mulch shall not be applied to areas having a substantial vegetative growth, such as grasses, weeds and grains. Areas not to be mulched shall be determined by the Owner. Mulching shall not be done during adverse weather conditions or when wind prevents uniform distribution. Application, if after seeding, shall be in a manner to not seriously disturb the seedbed surface. All roadway structures and facilities shall be protected and kept undamaged from application of bituminous material and other operations. Any such material deposited on such structures or facilities shall be removed, at the expense of the Contractor, to the satisfaction of the Department's Representative.

B. APPLICATION OF VEGETATIVE MULCH - Vegetative mulch shall be applied after seeding and fertilizing is completed unless otherwise directed. The mulch shall be applied in a uniform manner by a mulch spreader, at the rate specified in the Special Provisions or Plans. The mulch spreader shall be designed specifically for this type of work. The vegetative material shall be fed into the mechanical mulch spreader at an even, uniform rate.

When asphalt or a tackifying agent is used as a binder for vegetative mulch, it shall be applied at the rate specified in the Special Provisions or Plans. It shall be evenly distributed over the vegetative material as it emerges from the blower discharge or it may be hydraulically applied directly following mulch application. Uneven distribution, caused by inadequately powered or improperly adjusted equipment, poor workmanship, erratic material feed or discharge, or similar causes within the Contractor's control, shall be corrected. The quantity of asphalt or tackifying agent specified is subject to increase or decrease, as directed.

Straw or native hay shall be uniformly spread at the rate specified on the Plans, or in the Special Provisions, and unless otherwise specified by the Department's Representative, shall be anchored into the seedbed by using a mulch tiller. Straw or hay shall have a minimum length of 8 inches and shall be pliable. If straw breaks during tilling, it shall be sprinkled, not soaked, to facilitate placement.

Mulch tillers, specifically designed for this type of work, shall have round, notched blades of these approximate dimensions, 1/4 inch thick by 18-inches in diameter and spaced 8-inches apart. The tiller shall have sufficient weight to force the vegetative mulch a minimum of 3 inches into the soil and shall be equipped with disc scrapers. Mulch tilling shall be done on all slopes capable of being safely traversed by a tracked vehicle. All mulch tilling shall be done perpendicular to the flowline of the slope.

C. APPLICATION OF BITUMINOUS MULCH - When asphalt emulsion is the only mulch material stipulated in the Contract or plans, it shall be applied at a rate of approximately 2/10ths gallons per square yard (1000 gallons per acre) by blowing or other means that will not disturb the seedbed surface. It shall not be applied prior to seeding. It shall be applied at such a velocity that will not cause surface erosion. It must not be applied in such quantity as to completely blanket the ground surface. It shall be applied only to slopes steeper than 3:1, excepting that, in cut sections, the inslope shall be included if the backslope is so treated. Inadvertent spillage onto flatter slopes between the blowing equipment and the designated slope shall be held to a minimum.

D. APPLICATION OF FABRICATED MULCH AND FABRICATED NETTING - Fabricated mulch shall be laid on the areas specified on the Plans or directed by the Owner and securely fastened to the ground by wire staples, wooden pegs, or other satisfactory devices. Application shall be after seeding.

E. APPLICATION OF WOOD FIBER MULCH, ORGANIC MULCH, OR PAPER MULCH

Wood fiber mulch, organic mulch or paper mulch shall be applied by means of hydraulic equipment which utilizes water as the carrying agent. A continuous agitator action, that keeps the mulching material and approved additives in uniform suspension, must be maintained throughout the distribution cycle. The pump pressure shall be capable of maintaining a continuous non- fluctuating stream of slurry. The slurry distribution lines shall be large enough to prevent stoppage.

The discharge line shall be equipped with a set of hydraulic spray nozzles which will provide an even distribution of the mulch slurry to the seedbed. Mulching shall not be done in the presence of free surface water resulting from rains, melting snow, or other causes.

The Contractor shall start at the top of the slope and work downward. If necessary, he may be required to use extension hoses to reach the extremities of slopes.

F. FINISHING - Prior to final acceptance of the project, the Contractor shall immediately remulch any area from which the original mulch may have been washed or blown. If the original seedbed and seeding is damaged due to the displacement of the mulching material, the seedbed shall be repaired and reseeded before remulching. The operations described in this paragraph shall be at the Contractor's expense if the damage is due to his negligence.

APPENDIX B

KEY RECEIPT ACKNOWLEDGEMENT

I hereby acknowledge receipt of keys to the locks on the access culvert and steel grate system installed at the following abandoned mine project sites:

Marysville Mining District
Belmont Site #4-10 & #4-11
T12N R6W S35 NE SW
Lewis and Clark County, MT

These protective measures were installed by the Montana Department of State Lands, Abandoned Mine Reclamation Bureau, at the landowner's request, so that future access to the underground workings would be possible.

The Department of State Lands and its contractors make no warranties, either expressed or implied, concerning the safety or useability of the underground mine workings of the sites mentioned above. The undersigned understands that entry into the underground mine workings without provision for proper air is the responsibility of the undersigned.

I certify that I have read, understand, and concur with the statements made on this page.

Martin L Sadd — Nov. 9, 1990

Name PROJECT MANAGER. — Date

Joe Murphy — 11/9/90

Witness — Date

APPENDIX C

CERTIFICATE OF INSURANCE,
APPROVED PAYMENT REQUEST
CERTIFICATE OF SUBSTANTIAL COMPLETION
AND
AFFIDAVIT ON BEHALF OF CONTRACTOR

CERTIFICATE AS TO EVIDENCE OF INSURANCE

☒ (PRIMARY INSURANCE) The Exchange or Company shown on the reverse side as number 2
☐ (EXCESS INSURANCE) Excess over Primary with Company shown on reverse side as number ______

THIS IS NOT AN INSURANCE POLICY. THIS IS ONLY A VERIFICATION OF INSURANCE. IT DOES NOT IN ANY WAY AMEND, EXTEND OR ALTER THE COVERAGE PROVIDED BY THE POLICIES LISTED BELOW.

Named Insured Address
C TERRY FRENCH
FRENCH CONSTRUCTION
PO BOX 4774
HELENA MT 59604

______ Excess Policy or Certificate Number

Agent: 70-11-388
Policy Number: 06587-01-63

We certify that policies for the above Named Insured are in force as follows:

Effective from: 10/22/90 to: ______ at which time this certificate becomes ☐ VOID or ☒ continuous until cancelled. Box Xed applies).

COMMERCIAL GENERAL LIABILITY COVERAGE — COMBINED PRIMARY & EXCESS LIMITS OF INSURANCE

COVERED	NOT COVERED			
☒	☐ PREMISES/OPERATIONS	GENERAL AGGREGATE LIMIT (Other Than Products-Completed Operations	$ 1,000,000	
☒	☐ PRODUCTS-COMPLETED	PRODUCTS-COMPLETED OPERATIONS	$ 1,000,000	
		PERSONAL & ADVERTISING INJURY LIMIT	$	
		EACH OCCURRENCE LIMIT	$ 1,000,000	
		FIRE DAMAGE LIMIT	$	ANY ONE FIRE
		MEDICAL EXPENSE LIMIT	$ 5,000	ANY ONE PERSON
			$	

AUTO LIABILITY COVERAGE — COMBINED LIMITS OF PRIMARY & EXCESS INSURANCE

COVERED	NOT COVERED			
☐	☐ Owned	Bodily Injury	$	,000 each person
☐	☐ Hired		$	,000 each Accident
☐	☐ Non-Owned	Property Damage	$	,000 each Accident
☐	☐ Employer's Non-Ownership Contingent Liability			

Single Limit Liability for Coverages checked ☒ above $ ______ ,000 each Accident

☐ Cargo $ ______ ,000 each Vehicle
$ ______ ,000 each occurrence

OWNED AUTOS IF COVERED ☐ Described below ☐ Description waived

YEAR, MAKE, TYPE OF BODY, LOAD CAPACITY	IDENTIFICATION NUMBER LAST 3 DIGITS SHOWN

UMBRELLA LIABILITY

______ Umbrella Liability
POLICY NUMBER

$ ______ ,000 retained limit
$ ______ ,000 each occurrence
$ ______ ,000 aggregate

Upon cancellation or termination of this policy or policies from any cause we will mail 10(TEN) days written notice to the other interest shown below.
Notice of cancellation of the primary coverage automatically terminates excess coverage.
Certificate Issued To:

Name and Address
CHEN-NORTHERN INC
PO BOX 6699
HELENA MT 59604

Countersigned 11/19/90 Date By ______ Authorized Representative

This Certificate supersedes any previously issued certificate.

(Over)

FARMERS INSURANCE GROUP

Statement

FRENCH CONSTRUCTION
P. O. Box 4774
Helena, Montana 59604

Date Nov, 14, 1990

To CHEN - NORTHERN

Terms

Please detach and return upper portion with your remittance. $

	QTY		unit price			
		BACKFILL mine openings.				
172yds		SITE 4-6	10.20	1,	720.	00
125yds		SITE 4-7A	10.00	1.	250	00
	1	STEEL Grate System		1.	500	00
	1	SHAFT CULVERT		1	250	00
673		8ft CHAIN LINK FENCE	30.00	20	190 [illegible]	00
272 ft		FARM FENCE (TYPE F-5)	10.00	2	720	00
		Misc Site WORK	300.00		300	00
			$	28	930	00

WilsonJones
44-510 2-PART PRINTED IN U.S.A.
Carbonless

Your Check is Your Receipt

PURCHASE ORDER

05637

Chen-Northern, Inc.
A member of the HIH group of companies

FORWARD ALL BILLING TO:
CHEN-NORTHERN, INC.

SHIP TO:
CHEN-NORTHERN, INC.

TO: French Construction
P O Box 4774
Helena, MT 59604

DATE: Oct 11, 1990

ITEM NO.	Est. QTY.	DESCRIPTION	UNIT PRICE	AMOUNT
1	1	Mobilization		—
2	200	Backfill Mine Opening	10.00	2970.00
3	1	Steel Grate System (Pre-fab install)	1500.00	1500.00
4	1	Shaft culvert	1250.00	1250.00
5	8	Attaching Owner-Provided Signs	—	—
6	600	LF 8' Chain Link Fence	30.00	20,190.00
7	160	L.F. Farm Fence (Type F-5)	10.00	2720.00
8	1	LS Misc. Site Work	300.00	300.00
		TOTAL		$28,930.00

IMPORTANT: *Our Purchase Order number MUST appear on all invoices and correspondence.*

BY: Joe Murphy

APPROVED BY Jeremiah B. Bowser
AUTHORIZED BY
P.O. REQUESTED BY
BRANCH
USED ON JOB # 90-3133P B/C: YES X NO
B/C TO:
VEHICLE NO. DRILL
REMARKS * please pay this when indicated the Client is state of MT and will pay w/in 30-60 days.

FOR ACCOUNTING USE ONLY 008436

Vendor # 17888 Voucher #
Inv. Date 11-14-90 Inv. # —
Amount $ 28,930.00 PR Due 12-5-90

G/L	$	G/L	$
454-190	28,930.00		

EQUAL OPPORTUNITY/AFFIRMATIVE ACTION EMPLOYER
EIN: 84-0522970

ACCOUNTING

CERTIFICATE OF SUBSTANTIAL COMPLETION

TO: Montana Department of State Lands, AMRB OWNER

PROJECT TITLE: Belmont Maintenance Project

MONT A/E or DSL-AMRB: 167-D

CONTRACT DATE: October 11, 1990

LOCATION: Lewis & Clark, Co.
Montana

PROJECT OR PART SHALL INCLUDE:

CONTRACTOR: French Const.

ADDRESS: P.O. Box 4774
Helena, MT 59604

TELEPHONE NO: (406) 227-5447

SUBSTANTIAL COMPLETION DATE: Nov. 12, 1990

DSL INSPECTION DATE: October 31, 1990

ENGINEER: Chen-Northern, Inc.
Jeremiah B. Bowser, P.E.

PERFORMANCE BOND NO: N/A

DATE OF BOND: N/A

SURETY: N/A

MONTANA AGENT:

ADDRESS:

The Work performed under this Contract has been Inspected by authorized representatives of the Owner, Contractor, and Engineer, and the Project (or specified part of the Project, as indicated above) is hereby declared to be substantially completed on the above date.

DEFINITION OF SUBSTANTIAL COMPLETION

The date of substantial completion of a project or specified area of a project is the date when the construction is sufficiently completed, in accordance with the contract documents, as modified by any change orders agreed to by the parties, so the Owner can occupy or utilize the project or specified area of the project for the use for which it was intended.

A tentative list of items to be completed is appended hereto. This list may not be exhaustive, and the failure to include an item on it does not alter the responsibility of the Contractor to complete all the Work in accordance with the Contract Documents.

ENGINEER: Chen-Northern, Inc.

By Jeremiah B Bowser 12/12/90
Authorized Representative Date

The Contractor accepts the above Certificate of Substantial Completion and agrees to complete and correct the items on the tentative list within the time indicated.

CONTRACTOR: French Construction

By 12/9/90
Authorized Representative Date

The Owner accepts the Project or specified area of the Project as substantially complete and will assume full possession of the project or specified area at _______ (time), on _______________ (date). The responsibility for heat, utilities, security, and insurance under the Contract Documents shall be as set forth under "Remarks" below.

OWNER:

By
Authorized Representative Date

Remarks: (Attach additional sheet, if necessary)

Rev. 7/90

AFFIDAVIT ON BEHALF OF CONTRACTOR

STATE OF Montana)
: ss
COUNTY OF Lewis & Clark)
DATE: Nov. 14, 1990

MONT A/E or DSL-AMRB: ~~90-3133P~~
167-D

I certify to the best of my knowledge and belief that all work has been performed and materials supplied in strict conformance with the terms and conditions of the corresponding contract documents between CHEN NORTHERN, the Owner, and FRENCH CONSTRUCTION the Contractor, dated __________ for the Belmont Maintenance Project, Mont A/E or DSL-AMRB 167-D, and further declare that all bills for materials, supplies, utilities, and for all other things furnished or caused to be furnished by the above-named Contractor and used in the execution of the above Contract have been fully paid, and there are no unpaid claims or demands of State Agencies, subcontractors, materialmen, mechanics, laborers or any others resulting from or arising out of work done or ordered to be done by said Contractor under the above-identified Contract.

In consideration of the prior and final payments made and all payments made for authorized changes, the Contractor releases and forever discharges the Owner from any and all obligations and liabilities arising by virtue of said Contract and authorized changes between the parties hereto, either verbal or in writing, and any and all claims and demands of every kind and character whatsoever against the Owner, arising out of or in any way relating to said Contract, and authorized changes.

This statement is made for the purpose of inducing the Owner to make Final Payment under the terms of the Contract, relying on the truth and statements contained therein.

Dated this 14 day of November 1990 at Helena, Montana.

CONTRACTOR: French Construction

By: C Gerry French
Title: Owner

Subscribed and sworn to before me this 14 day of November, 1990.

Laura Dardahl
Notary Public for the State of Montana
Residing at Helena MT
My commission expires 10-17-91

(SEAL)

Rev. 7/90

GRIZZLY FENCE

ALL TYPES OF COMMERCIAL & RESIDENTIAL FENCING • CHAIN LINK SPECIALISTS
TENNIS COURTS • DOG KENNELS • SWIMMING POOL ENCLOSURES
3426 HWY 12 EAST • (406) 443-6460 • HELENA, MONTANA 59601

1077
C R [✓ O] Cr

SOLD TO FRENCH Const.
BOX 4774
HELENA, MT. 59604

DATE 11-12- 1991

SOLD BY	CASH	CHARGE	C.O.D.	ON ACCT.	MDSE. RET'D	PAID OUT	REMARKS
Glen	X						

DESCRIPTION	UNIT	UNIT PRICE	AMOUNT	
Fence Materials			7476	32
Belmont, mt. Ski Area				
Paid In Full				
E.R. Hunt				

RECEIVED BY

TOTAL ➧ 7476 32

Average daily balance (exclusive of unpaid finance charges) of your charge account is subject to a monthly **FINANCE CHARGE** of 1-1/2% (minimum 50¢) which is an **ANNUAL PERCENTAGE RATE** of 18%, if account is not paid in full on or before 10th of month following closing date your monthly statement. This **FINANCE CHARGE** may be avoided by paying the new balance shown on your monthly statement in full on or before the 10th of the following month. Grizzly Fence, upon compliance with applicable lien laws, may acquire a mechanic's lien or materialman's lien, upon the property upon which labor is performed or material is furnished.

White - original Yellow - accounting Pink - customer Gold - file

10% Restocking Fee

ALL CLAIMS AND RETURNED ITEMS MUST BE ACCOMPANIED BY THIS INVOICE

APPENDIX D

SLIDES AND SLIDE LOG

7.0 SLIDES
BELMONT MAINTENANCE PROJECT
CONSTRUCTION SLIDE LOG

SLIDE #	DATE	MINE OPENING #	SEQUENCE, VANTAGE POINT & DESCRIPTION
1	10/23/90	4-6	Installing corner panels
2	10/23/90	4-6	Installing corner panels
3	10/29/90	4-6	Complete fence
4	10/29/90	4-6	Complete fence
5	10/22/90	4-8	Loader accessing site
6	10/30/90	4-8	Backfilling shaft
7	10/30/90	4-8	Trackloader accessing site
8	10/30/90	4-8	Reclaiming access road
9	10/30/90	4-7a	Removing debris from shaft
10	10/30/90	4-7a	Removing debris from shaft
11	10/31/90	4-7a	Backfilling shaft
12	10/31/90	4-7a	Reclaimed area
13	10/19/90	4-8	Installing corner posts
14	11/2/90	4-8	Installing chain link fence
15	11/2/90	4-8	Installing chain link fence
16	11/6/90	4-8	SW line of chain link fence
17	11/6/90	4-8	NW corner of chain link fence
18	11/6/90	4-8	NE corner of chain link fence
19	11/6/90	4-8	SE line of chain link fence
20	11/6/90	4-8	SW corner of chain link fence
21	11/6/90	4-8	NE line of chain link fence
22	11/8/90	4-8	SE corner with hazard sign
23	10/17/90	4-9	Equipment set-up
24	10/17/90	4-9	Dump truck and materials
25	10/17/90	4-9	Dump truck and materials

SLIDE #	DATE	MINE OPENING #	SEQUENCE, VANTAGE POINT & DESCRIPTION
26	10/17/90	4-9	Before, 50' East of opening
27	10/17/90	4-9	Establishing corners
28	10/17/90	4-0	Mixing concrete
29	10/17/90	4-9	Mixing concrete
30	10/18/90	4-9	Setting NW corner post
31	10/18/90	4-9	Setting SW corner post
32	10/18/90	4-9	North line of chain link fence
33	10/19/90	4-9	Drilling rock for post hole
34	10/19/90	4-0	Mixing concrete
35	10/19/90	4-9	N,S, & W lines of chain link fence
36	11/6/90	4-9	Setting top rail of West line
37	11/6/90	4-9	SW corner chain link fence
38	11/6/90	4-9	Setting top rail & brace SW corner
39	11/6/90	4-9	Cutting posts to length
40	11/6/90	4-9	Cutting posts to length
41	11/8/90	4-9	Unloading materials
42	11/9/90	4-9	SW corner with mesh fabric
43	11/9/90	4-9	Installing mesh fabric South line
44	11/9/90	4-9	North & South lines of chain link fence
45	11/6/90	4-9	Attaching mesh fabric to top rail
46	11/9/90	4-9	Attaching mesh fabric to top rail
47	11/9/90	4-9	Installing mesh fabric NW corner
48	11/6/90	4-9	Installing hazard sign NW corner
49	11/9/90	4-9	North line of chain link fence
50	11/12/90	4-9	Complete fence - West line

SLIDE #	DATE	MINE OPENING #	SEQUENCE, VANTAGE POINT & DESCRIPTION
54	11/12/90	4-9	Complete fence S & W lines
52	11/12/90	4-9	Complete fence North line
53	10/19/90	4-10	Installing culvert
54	10/19/90	4-10	Installing concrete collar on culvert
55	10/19/90	4-10	Installing hatch cover on culvert
56	10/25/90	4-11	Accessing site with grate on loader
57	10/25/90	4-11	Accessing site
58	10/25/90	4-11	Accessing site
59	10/25/90	4-11	Moving grate toward shaft opening
60	10/25/90	4-11	Positioning grate over shaft
61	10/30/90	4-11	Installing rebar along sides of grate
62	10/30/90	4-11	Complete grate installation